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OF THE

NEW HAMPSHIRE COLLEGE

OF

AGRICULTURE AND THE MECHANIC ARTS

DURHAM, NEW HAMPSHIRE

1906-1907

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CALENDAR.

1906

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1908

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COLLEGE CALENDAR,

1906.

- Sept. 4-5. Examinations for admission begin Tuesday at 9 a. m.
- Sept. 6. Regular college exercises begin Thursday at 10 a. m.
- Oct. 10. Stated meeting of Trustees.
- Dec. 21. First term ends Friday night.

WINTER VACATION.

1907.

- Jan. 8. Registration day. Second term begins Tuesday.
- Jan. 9. Stated meeting of the Trustees.
- March 15. Second term ends Friday night.

SPRING VACATION.

- March 26. Registration day. Third term begins Tuesday.
- April 10. Stated meeting of Trustees.
- May 28. Senior examinations completed, 4 p. m.
- June 2. Baccalaureate sermon, Sunday at 10.45 a. m.
- June 3. Prize Drill, 8 p. m., in the Armory.
- June 4. Class Day.
- Stated meeting of Trustees.
- Glee Club concert at 8 p. m. in Thompson Hall.
- June 5. Commencement Day, Wednesday.

SUMMER VACATION.

- Sept. 3-4. Examinations for admission begin Tuesday at
9 a. m.
- Sept. 4. Registration day. First term begins Wednesday.
- Oct. 9. Stated meeting of Trustees.
- Dec. 20. First term ends Friday night.

WINTER VACATION.

1908.

- Jan. 7. Registration day. Second term begins Tuesday.

BOARD OF TRUSTEES.

HIS EXCELLENCY, GOV. JOHN McLANE, M. S., *ex officio*.

CHARLES W. STONE, A. M., East Andover, *President*.

PRES. WILLIAM D. GIBBS, Durham, *ex officio*.

HON. LUCIEN THOMPSON, Durham, *Secretary*.

HON. JOHN G. TALLANT, Pembroke.

*GEORGE B. WILLIAMS, Walpole.

HON. WARREN BROWN, Hampton Falls.

HON. ROSECRANS W. PILLSBURY, Londonderry.

HON. RICHARD M. SCAMMON, Stratham.

WALTER DREW, Colebrook.

HON. NAHUM J. BACHELDER, M. S., A. M., East
Andover.

GORDON WOODBURY, A. B., PH. D., LL. B., Bedford.

EDWARD H. WASON, B. S., Nashua, *Alumni Trustee*.

GEORGE W. CURRIER, M. D., Nashua.

WALTER M. PARKER, A. B., Manchester, *Treasurer*.

*Died August 19th, 1906.

OFFICERS OF INSTRUCTION.

WILLIAM D. GIBBS, M. S., *President and Director of the Experiment Station.*

CHARLES H. PETTEE, A. M., C. E., *Dean and Professor of Mathematics and Civil Engineering.*

CLARENCE W. SCOTT, A. M., *Professor of History and Political Economy; Librarian.*

FRED W. MORSE, M. S., *Professor of Organic Chemistry.*

CHARLES L. PARSONS, B. S., *Professor of Inorganic Chemistry.*

*FRANK WILLIAM RANE, B. Agr., M. S., *Professor of Horticulture and Forestry.*

CARLETON A. READ, S. B., *Professor of Mechanical Engineering.*

FREDERICK W. TAYLOR, B. Sc. (Agr.), *Professor of Agriculture.*

E. DWIGHT SANDERSON, B. S., *Professor of Zoology and Entomology.*

ARTHUR F. NESBIT, S. B., A. M., *Professor of Physics and Electrical Engineering.*

WILLIAM E. HUNT, B. S., First Lieutenant Eighth U. S. Infantry, *Professor of Military Science and Tactics.*

**HARRY F. HALL, B. S., *Professor of Horticulture.*

RICHARD WHORISKEY, JR., A. B., *Associate Professor of Modern Languages.*

CHARLES BROOKS, A. M., *Associate Professor of Botany.*

* Resigned October 1, 1906.

** Beginning January 1, 1907.

F. W. PUTNAM, B. S., *Associate Professor of Drawing and Design.*

EDWARD L. SHAW, B. Sc. (Agr.), *Assistant Professor of Agriculture.*

EDWARD H. HANCOCK, B. S., *Assistant Professor of Mechanical Engineering.*

C. H. HARRISON, A. B., B. D., *Assistant Professor of English and Philosophy, Secretary of the Faculty.*

†IVAN C. WELD, *Instructor in Dairying.*

CHARLES JAMES, A. I. C., *Instructor in Chemistry.*

FRANK R. BROWN, B. S., *Instructor in Machine Work.*

SAMUEL T. ADAMS, B. S., *Instructor in Physics and Electrical Engineering.*

J. K. SHAW, B. Sc. (Agr.), *Instructor in Horticulture.*

FRANK A. TINKHAM, B. S., *Assistant in Dairying.*

T. J. HEADLEE, A. M., PH. D., *Assistant in Entomology.*

JOHN D. CLARK, B. S., *Student Assistant in Chemistry.*

GEORGE S. HAM, *Farm Foreman.*

MABEL E. TOWNSEND, A. B., *Associate Librarian; Registrar.*

EXECUTIVE OFFICE.

EDITH M. DAVIS, *Purchasing Agent.*

ALICE G. BAKER, *Bookkeeper.*

ENGINEER AND CURATOR OF BUILDINGS.

OSCAR W. STRAW.

† Resigned October 15, 1906.

AGRICULTURAL EXPERIMENT STATION.

BOARD OF CONTROL.

HON. JOHN G. TALLANT, <i>Chairman,</i>	Pembroke
CHARLES W. STONE, A. M., <i>Secretary,</i>	East Andover
HON. WARREN BROWN,	Hampton Falls
HON. N. J. BACHELDER, A. M., M. S.,	East Andover
PRES. WILLIAM D. GIBBS, <i>ex officio,</i>	Durham

STATION COUNCIL.

WILLIAM D. GIBBS, M. S., *Director.*
FRED W. MORSE, M. S., *Chemist and Vice-Director.*
*FRANK WILLIAM RANE, B. Ag., M. S., *Horticulturist.*
FREDERICK W. TAYLOR, B. Sc. (Agr.), *Agriculturist.*
E. DWIGHT SANDERSON, B. S., *Entomologist.*
†IVAN C. WELD, *Dairy Manufactures.*
EDWARD L. SHAW, B. Sc. (Agr.), *Associate Agriculturist.*
CHARLES BROOKS, A. M., *Associate Botanist.*
J. K. SHAW, B. Sc. (Agr.), *Associate Horticulturist.*
B. E. CURRY, M. S., *Associate Chemist.*
T. J. HEADLEE, A. M., PH. D., *Assistant Entomologist.*
GEORGE S. HAM, *Farm Foreman.*
EDITH M. DAVIS, *Purchasing Agent.*
MABEL H. MEHAFFY, *Stenographer.*
ALICE G. BAKER, *Bookkeeper.*

* Resigned October 1, 1906.

† Resigned October 15, 1906.

STUDENTS.

a—Agricultural Course; *c*—Course in Technical Chemistry; *g*—General Course; *m e*—Mechanical Engineering; *e e*—Electrical Engineering; *u*—Unclassified. Sophomores in the Engineering Courses are designated by *e* only. Freshmen are not classified in courses.

POST-GRADUATE.

Name.	Residence.	Room.
Clark, John Dustin	<i>Nashua.</i>	The Castle.

SENIORS.

Name.	Residence.	Room.
Batchelor, Leon Dexter <i>a</i>	<i>West Upton, Mass.</i>	Kappa Sigma House.
Berry, Philip Ray <i>m e</i>	<i>Alton.</i>	Miss Berry's.
Broggini, Andrew <i>e e</i>	<i>Concord.</i>	Kappa Sigma House.
Dodge, Carl Austin <i>c</i>	<i>New Boston.</i>	Kappa Sigma House.
Ingham, Harry Edward <i>m e</i>	<i>Nashua.</i>	Kappa Sigma House.
Lane, Frank Davis <i>m e</i>	<i>Manchester.</i>	Kappa Sigma House.
Littlefield, Ralph Albion <i>a</i>	<i>Portsmouth.</i>	Mr. G. Ham's.
Noyes, Bernard C. <i>a</i>	<i>Lisbon.</i>	Zeta House.
Powers, John Glenn <i>a</i>	<i>Concord.</i>	Kappa Sigma House.
Randall, Frank Wiggin <i>e e</i>	<i>Portsmouth.</i>	Delta Hall.
Townsend, Ellice Storrs <i>g</i>	<i>Lebanon.</i>	Miss Berry's.
Watson, Lucia Soule <i>g</i>	<i>Durham.</i>	Mr. D. Watson's.
Woodward, Arthur Jason <i>e e</i>	<i>Lancaster.</i>	Delta Hall.

JUNIORS.

Name.	Residence.	Room.
Adams, Waldo Lawrence <i>c</i>	<i>Townsend, Mass.</i>	Mrs. Sanders'.
Barton, Arthur Hosea <i>e e</i>	<i>Newport.</i>	Thompson Hall.
Batchelder, Arthur Milliken <i>e e</i>	<i>Suncook.</i>	Kappa Sigma House.
Buss, Minot Giles <i>e e</i>	<i>Wilton.</i>	Kappa Sigma House.
Carlisle, Lawrence Andrew <i>a</i>	<i>Exeter.</i>	Exeter.
Cash, James Dennis <i>a</i>	<i>Manchester.</i>	Zeta House.

Chesley, Mary Abbie <i>g</i>	<i>Lee.</i>	<i>Lee.</i>
Clough, Francis <i>e e</i>	<i>Contoocook.</i>	Kappa Sigma House.
Cory, Merton M. <i>e e</i>	<i>Nashua.</i>	Pettee Block.
Croghan, John Timothy <i>e e</i>	<i>Concord.</i>	Kappa Sigma House.
DeMeritt, Kathardine <i>g</i>	<i>Durham.</i>	Mr. A. DeMeritt's.
Dickey, Harold Hurst <i>g</i>	<i>Manchester.</i>	Kappa Sigma House.
Evans, Walter Woods <i>c</i>	<i>East Kingston.</i>	Delta Hall.
Farwell, Oren Lovell <i>a</i>	<i>Harrisville.</i>	Delta Hall.
French, Harry Fifield <i>c</i>	<i>Plymouth.</i>	Kappa Sigma House.
Hill, Stanley Fisk <i>m e</i>	<i>Nashua.</i>	Delta Hall.
Huse, Merritt Chase <i>e e</i>	<i>Concord.</i>	Kappa Sigma House.
Kirkpatrick, William R. <i>m e</i>	<i>Nashua.</i>	Delta Hall.
Murchie, William Ewart <i>e e</i>	<i>Concord.</i>	Kappa Sigma House.
O'Connor, John Joseph <i>e e</i>	<i>Portsmouth.</i>	Zeta House.
Page, John Caleb <i>g</i>	<i>Boston, Mass.</i>	Nesmith Hall.
Perley, George Arthur <i>c</i>	<i>Goffstown.</i>	Prof. Pettee's.
Pettee, Sarah Elizabeth <i>g</i>	<i>Durham.</i>	Prof. Pettee's.
Smalley, Dean Fred <i>e e</i>	<i>Walpole.</i>	Delta Hall.
Tarbell, Carl Brown <i>m e</i>	<i>Milton.</i>	Kappa Sigma House.
Wadleigh, Ray Emery <i>e e</i>	<i>Hampton Falls.</i>	Kappa Sigma House.
Waite, George Lyman <i>a</i>	<i>Dunbarton.</i>	Zeta House.
Walker, Harold Duncan <i>e e</i>	<i>Kittery Point, Me.</i>	Zeta House.
Woodman, Francis Ward <i>c</i>	<i>West Derry.</i>	Mrs. Sanders'.

SOPHOMORES.

Name.	Residence.	Room.
Ackerman, Laurence Day <i>c</i>	<i>Bristol.</i>	The Castle.
Brown, Edna Olive <i>g</i>	<i>Rye Beach.</i>	Prof. Hancock's.
Burnham, Esther Young <i>g</i>	<i>Durham.</i>	Mr. Burnham's.
Campbell, William Smith <i>e</i>	<i>Litchfield.</i>	Pettee Block.
Chase, Carl <i>e</i>	<i>Webster.</i>	The Castle.
Cone, Charles Francis <i>e</i>	<i>Nashua.</i>	Zeta House.
Doe, Marion <i>g</i>	<i>Durham.</i>	Mr. Frank Doe's.
Ellsworth, Perry Foss <i>e</i>	<i>Meredith.</i>	Mr. Hoitt's.
Falconer, John Ironside <i>a</i>	<i>Milford.</i>	Mr. Stevens'.
Goodwin, Otis Dana <i>e</i>	<i>Hollis.</i>	Prof. Shaw's.
Hammond, Roland Bowman <i>e</i>	<i>Nashua.</i>	Zeta House.
Hardy, Harold Elwin <i>a</i>	<i>Hollis.</i>	Mr. Stevens'.
Hayes, Lawrence Corson <i>e</i>	<i>Milton.</i>	Pettee Block.
Hurlburt, Wallace Blanchard <i>e</i>	<i>Northfield.</i>	The Castle.
Jenness, Herbert Leon <i>e</i>	<i>Rye Beach.</i>	Zeta House.
Kelley, Charles William <i>e</i>	<i>Barnstead.</i>	Miss Berry's.
Kennedy, Carl Duncan <i>c</i>	<i>Concord.</i>	Pettee Block.
Kimball, Charles Fellows <i>c</i>	<i>Meriden.</i>	Miss Berry's.

Kimball, Leland Hayward <i>e</i>	<i>Salt Lake City, Utah.</i>	The Castle.
Lougee, Bernard Ayers <i>e</i>	<i>Pittsfield.</i>	Dr. Grant's.
McKone, Frank E. <i>e</i>	<i>Dover.</i>	Dover.
Matthews, Charles Doane <i>a</i>	<i>Portsmouth.</i>	Zeta House.
Merrill, Maurice David <i>e</i>	<i>Andover.</i>	Pettee Block.
Osgood, Philip Marcus <i>e</i>	<i>Pittsfield.</i>	Miss Berry's.
Parker, John Edward <i>a</i>	<i>Goffstown.</i>	Mrs. Sanders'.
Parker, William Brackett <i>g</i>	<i>Portsmouth.</i>	Kappa Sigma House.
Peaslee, Albert <i>e</i>	<i>Gonic.</i>	Mr. Burnham's.
Pike, Herbert S. <i>e</i>	<i>Lisbon.</i>	Mr. Edgerly's.
Pratt, Lester Albert <i>c</i>	<i>Alton Bay.</i>	The Castle.
Priest, James Harry <i>e e</i>	<i>Manchester.</i>	Mrs. J. Thompson's.
Quimby, Harold Wallace <i>e</i>	<i>Northwood Narrows.</i>	Mr. Hoitt's.
Richardson, Charles Sidney <i>e</i>	<i>Cornish Centre.</i>	Nesmith Hall.
Rolfe, Benjamin Henry <i>g</i>	<i>Concord.</i>	Kappa Sigma House.
Sanborn, Edson Dana <i>a</i>	<i>Fremont.</i>	Mr. Wentworth's.
Sanborn, Moses Harmon <i>a</i>	<i>Fremont.</i>	Zeta House.
Sargent, George Jackman <i>c</i>	<i>Concord.</i>	Pettee Block.
Smalley, Lee Lawrence <i>e</i>	<i>Walpole.</i>	Delta Hall.
Stevens, Ernest Morton <i>e</i>	<i>Andover.</i>	Pettee Block.
Stokes, Iva Dorothy <i>g</i>	<i>Epsom.</i>	Prof. Hancock's.
Townsend, Harry Storrs <i>a</i>	<i>Lebanon.</i>	Delta Hall.
Trickey, John Paul <i>c</i>	<i>Rochester.</i>	The Castle.
Trow, Herbert Averill <i>e</i>	<i>Mount Vernon.</i>	Pettee Block.
Tucker, James William <i>e</i>	<i>Concord.</i>	Pettee Block.
Watson, Sumner William <i>a</i>	<i>Rochester.</i>	Mr. Burnham's.
Wendell, Chester Snell <i>e</i>	<i>Dover.</i>	Mrs. Sanders'.
Wentworth, Stephen Neal <i>c</i>	<i>Rochester.</i>	Delta Hall.
Wilder, Howard Erwin <i>e</i>	<i>Amesbury, Mass.</i>	Prof. Shaw's.
Wilkins, Carroll Blaisdell <i>a</i>	<i>Nashua.</i>	Zeta House.
Wilkins, Harold Hartshorn <i>e</i>	<i>Amherst.</i>	Pettee Block.
Wood, Chester Loring <i>u</i>	<i>Dudley, Mass.</i>	Greenhouse.
Woods, Arthur Page <i>e</i>	<i>Bath.</i>	Pettee Block.

FRESHMEN.

Name.	Residence.	Room.
Anderson, David Wadsworth	<i>Manchester.</i>	Pettee Block.
Atherton, Luther Elmer	<i>Lebanon.</i>	Pettee Block.
Bell, Henry Gatie	<i>Durham.</i>	
Bills, Frank Hartwell	<i>Reed's Ferry.</i>	Mr. Hayes'.
Blake, Alfred Edward	<i>Nashua.</i>	Mr. Stevens'.
Boynton, Dalton	<i>Little Boar's Head.</i>	Pettee Block.
Bryant, Orville Frank	<i>Ashland.</i>	Mr. Schoonmaker's.
Burns, Lucian Holmes	<i>Milford.</i>	Mrs. Wiggin's.

Burroughs, Edgar Herbert	<i>Sanbornville.</i>	Mr. Sawyer's.
Burroughs, Wilbur Warren	<i>Sanbornville.</i>	Mr. Sawyer's.
Carson, Forest Guy	<i>Francestown.</i>	Mr. Ham.
Chamberlin, George H.	<i>Woodsville.</i>	Pettee Block.
Clark, Maurice Chester	<i>Marlboro.</i>	Mr. Stevens'.
Colburn, Kenneth Crosby	<i>Francestown.</i>	Mr. Ham's.
Converse, Henry Thomas	<i>Amherst.</i>	Mr. Sawyer's.
Corliss, Harry Percival	<i>Wolfboro.</i>	Mr. Schoonmaker's.
Corson, Harry Peach	<i>Laconia.</i>	Mr. Sawyer's.
Cotton, Arthur Clyde	<i>Alton.</i>	Pettee Block.
Crosby, Percy Raymond	<i>Atkinson.</i>	Pettee Block.
Day, Harold Robbins	<i>Hudson.</i>	Thompson Hall.
Edgerly, Edwin Blake	<i>Mirror Lake.</i>	Mr. Hayes'.
Emery, Roland Chester	<i>Hampton.</i>	Mr. Burnham's.
Fifield, Stuart Guy	<i>Penacook.</i>	Mr. Schoonmaker's.
Fisher, Stanley Revell	<i>Ellis, Mass.</i>	Mr. Wentworth's.
Fitch, Harry Edward	<i>Manchester.</i>	Pettee Block.
Foster, George Goodwin	<i>Sandwich, Mass.</i>	Miss Berry's.
French, Edward Daniel	<i>Amesbury, Mass.</i>	So. Hampton.
George, Wallace Bruce	<i>Newmarket.</i>	Newmarket.
Hefler, George Burpee	<i>Brockton, Mass.</i>	Pettee Block.
Hoben, Frank M.	<i>Concord.</i>	Mr. Schoonmaker's.
Holmes, Harry Wesley	<i>Northwood.</i>	Mr. Stevens'.
Hooper, Frederic Leslie	<i>Winchester.</i>	Mr. Burnham's.
Hoyt, Simes Thurston	<i>Newington.</i>	Mr. Edgerly's.
Jenness, Elwood S.	<i>Gonic.</i>	The Castle.
Kidder, Walter Dennis	<i>Manchester.</i>	Pettee Block.
Knapp, Raymond Adelbert	<i>Gloucester, Mass.</i>	Mrs. O'Hearn's.
Lane, Arthur Seavey	<i>Kittery Foreside, Me.</i>	Mr. Edgerly's.
Langelier, Wilfred W.	<i>Nashua.</i>	Zeta House.
Lawrence, Cheney E.	<i>Nashua.</i>	Pettee Block.
Leonard, James Mortimer	<i>Woodsville.</i>	Pettee Block.
McGrail, Frederic Richard	<i>East Pepperell, Mass.</i>	Pettee Block.
McLaughlin, Leon Eugene	<i>Laconia.</i>	Mr. Sawyer's.
Morrison, Leonard S.	<i>Penacook.</i>	Mr. Schoonmaker's.
Neal, Haldimand W.	<i>Dover.</i>	Mr. Schoonmaker's.
Neal, Robert Abbott	<i>Dover.</i>	Mr. Schoonmaker's.
Pattee, Carl Burnham	<i>Goffstown.</i>	Mr. Edgerly's.
Peel, Charles Edward	<i>Nashua.</i>	Mr. Wentworth's.
Perkins, Clement Linwood	<i>Berwick, Me.</i>	Pettee Block.
Pettengill, George Herbert	<i>Amherst.</i>	Mr. Hoitt's.
Philbrook, Henry Brown	<i>North Hampton.</i>	Mr. Schoonmaker's.
Proud, Brenton William	<i>Manchester.</i>	Pettee Block.

Read, Harold Clifford	<i>Westport.</i>	Mr. Burnham's.
Reynolds, Clearton Howard	<i>Middletown, N. Y.</i>	Mr. Schoonmaker's.
Ryan, John Joseph	<i>Waterbury, Conn.</i>	Mr. Ham's.
Scammon, Raymond Brewster	<i>Stratham.</i>	Stratham.
Scott, Bessie Amanda	<i>Tyson, Vt.</i>	Prof. Scott's.
Sherburne, Philip Webster	<i>Pittsfield.</i>	Miss Berry's.
Sloan, Frank Ackerman	<i>Amherst.</i>	Zeta House.
Smith, James William	<i>Franconia.</i>	Mrs. O'Hearn's.
Sproul, Avard Cummings	<i>Quincy, Mass.</i>	Mr. Schoonmaker's.
Sullivan, Robert Lawrence	<i>Reed's Ferry.</i>	Mr. Hayes'.
Swan, Clyde Henry	<i>Keene.</i>	Mr. Burnham's.
Tenney, Harry William	<i>Newport.</i>	Mr. Schoonmaker's.
Thorp, Theron Alberto	<i>Exeter.</i>	Exeter.
Towne, Ernest George	<i>Thornton.</i>	Prof. Sanderson's.
Upton, Hiram D.	<i>Manchester.</i>	Prof. Parsons'.
Waite, Ira Merrill	<i>Goffstown.</i>	Mr. Edgerly's.
Wells, Burleigh Ray	<i>Somersworth.</i>	Pettee Block.
Wilkins, Aaron Wallace	<i>Milford.</i>	Pettee Block.
Wright, Chesley Frank	<i>New Durham.</i>	Pettee Block.
Wyman, Horace Chester	<i>Manchester.</i>	Prof. Parsons'.

TWO-YEAR COURSE.

SECOND YEAR.

Name.	Residence.	Room.
Batchelder, Daniel Raymond	<i>Wilton.</i>	A. T. A.
Blood, Alfred Elwin	<i>East Sullivan.</i>	A. T. A.
Brackett, Edwin Lamprey	<i>Greenland.</i>	A. T. A.
Dean, Abram Lawrence	<i>Taunton, Mass.</i>	Prof. Scott's.
Frink, Simes	<i>Newington.</i>	A. T. A.
Hickey, William Patrick	<i>Bow.</i>	Mr. W. Beard's.
Kampe, Frederick Henry		
Charles	<i>East Alstead.</i>	A. T. A.
Parker, Lee Augustus	<i>Keene.</i>	Pettee Block.
Sanborn, Lewis Elwell	<i>Ashland.</i>	A. T. A.
Tucker, Ernest Eugene	<i>Durham.</i>	Mrs. Sander's.
Wright, Charles Shannon	<i>Portsmouth.</i>	Prof. Scott's.

FIRST YEAR.

Name.	Residence.	Room.
Allen, James H.		Pettee Block.
Brown, Charles Harold	<i>Fremont.</i>	Mr. Wentworth's.
Carter, Harry	<i>Hedding.</i>	Pettee Block.
Cummings, George Henry	<i>Colebrook.</i>	Brook Cottage.

Cummings, Walter	<i>Colebrook.</i>	Brook Cottage.
Foss, Mark	<i>Durham.</i>	Mr. L. K. Foss's.
Holmes, George Allen	<i>Langdon.</i>	Pettee Block.
Hunter, Ernest Melville	<i>Melvin Village.</i>	Mr. Hayes'.
Leavitt, Guy	<i>Sanbornton.</i>	Pettee Block.
Littlefield, Harold Thorn	<i>Salem Depot.</i>	Pettee Block.
Parmenter, William O., Jr.	<i>Springfield, Mass.</i>	Mr. Hoitt's.
Prentiss, John Willard, Jr.	<i>Walpole.</i>	A. T. A.
Smith, Harry A.	<i>Wilton.</i>	
Stepansky, Henry David	<i>Durham.</i>	Pettee Block.

SPECIAL COURSE.

Name.	Residence.	Room.
Abbott, Walter Sidney	<i>Manchester.</i>	Mrs. O'Hearn's.
Bunker, Eva Eldora	<i>Durham.</i>	Mr. Bunker's.
Burr, Lottie Josephine	<i>Dover.</i>	Dover.
Langdell, Russell Stearns	<i>Lowell, Mass.</i>	Mr. Wentworth's.
Lord, Carey Stevens	<i>Allston, Mass.</i>	Mr. Burnham's.
Robinson, Lilla	<i>Marlborough.</i>	Miss Berry's.
Tredick, Helen F.	<i>Exeter.</i>	Exeter.

TEN-WEEK COURSE.

Name.	Residence.
Belden, Earle Jerome	<i>Waitsfield, Vt.</i>
Burnham, Wayne Morris	<i>East Barnard, Vt.</i>
Chase, Claude Clement	<i>Warner.</i>
Clark, Hugh	<i>West Fairlee, Vt.</i>
Douglas, Moses Hale	<i>New Highlands, Mass.</i>
Gauvin, Edward George	<i>Barton Landing, Vt.</i>
Jackson, Clarence Sanford	<i>Ludlow, Vt.</i>
Littlefield, Harold Thorn	<i>Salem Depot.</i>
Lyons, John Clarence	<i>Beverly, Mass.</i>
Newton, Roland Wallace	<i>Middlebury, Vt.</i>
Quinn, Matthew James	<i>Fairhaven, Vt.</i>
Storer, Eliot Chesley	<i>Arlington, Mass.</i>
White, Barton Edsall	<i>Grafton.</i>

SUMMARY.

Post-Graduates	1
Seniors	13
Juniors	29
Sophomores	49
Freshmen	73
Students in Ten-Week Course.....	25
Students in Two-Year Course.....	13
Special Students	9
<hr/>	
Total	212

FOUNDATION AND ENDOWMENT.

The New Hampshire College of Agriculture and the Mechanic Arts was incorporated by the state Legislature in 1866, under the provisions of the act of Congress, approved July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," the grant of land having been accepted by an act of Legislature, approved July 9, 1863.

The act of 1862 provides that the income from the investment of the money realized from the sale of the lands shall be appropriated "to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The "Morrill Bill," which was approved August 30, 1890, and received the assent of the state by an act of Legislature, approved February 13, 1891, provides an appropriation for the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of "the act of 1862."

The appropriation under the Morrill act is "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

Under an act of Congress approved March 2, 1887, which received legislative assent August 4, 1887, was established that department of the college known as the Agricultural Experiment Station, the purpose of which was "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

Benjamin Thompson, who died January 30, 1890, was a resident of Durham, and a farmer by profession. He had at heart the agricultural interests of his native state, and in the furtherance of those interests he bequeathed to it at his death his whole estate with a few minor reservations.

Mr. Thompson's final statement of the object of his bequest was as follows: "My object being mainly to promote the improvement of agriculture, though willing that the college to be established should also provide for the mechanic arts, it is my will that the institution to be established by the state * * * shall be called and designated * * * The New Hampshire College of Agriculture and the Mechanic Arts, if that shall be the wish of the state; and that in addition to the instruction to be given therein, as provided by my said will, there shall be taught only such other arts or sciences as may be necessary to enable said state to fully avail itself of said donation of lands by the government in good faith, which two branches of instruction shall be the leading objects of said institution or college."

By the provisions of the will, the income from this source will not, however, become available until 1910. This endowment will amount at that time to nearly \$800,000, the annual income from which will be about \$32,000.

The state Legislature accepted the Thompson bequest March 5, 1891, and on April 10th of the same year appropriated \$100,000 for buildings. Approximately \$50,000 was realized from the sale of property and from other sources. In 1893 an additional appropriation of \$35,000 was made

by the state for completing and furnishing the buildings. Accordingly in 1893 the college was moved from its first home at Hanover to its present location at Durham.

The general government of the college is vested in a board of thirteen trustees. The governor of the state and the president of the college are trustees, *ex officio*; the alumni of the college elect one trustee; and all other trustees are appointed by the governor of the state, with the advice and consent of the council.

The college is executing the trust reposed in it by giving instruction in the various courses described in this catalogue under the prescribed heads of "agriculture" and "the mechanic arts."

The income for the current year is from the following sources: From the federal land grant of 1862, \$4,800; from the federal government under the acts of 1887 and 1906, \$22,000, to be applied only for use of the Agricultural Experiment station; from the same source under the act of 1890, \$25,000; and from the state, \$13,000; and from various other sources, about \$5,000.

GENERAL INFORMATION.

New Hampshire College offers the following courses :

1. Agricultural Courses.
 - a. Four-year course.
 - b. Two-year course.
 - c. Ten-week course.
2. Mechanical Engineering Course.
3. Electrical Engineering Course.
4. Chemical Engineering Course.
5. General Course.

The college is a part of the public school system of the state. It stands, in its agricultural, mechanical engineering, electrical engineering, technical chemistry, and general scientific courses, in the same relation to the high schools that the high schools stand to the grammar schools, and that these in turn stand to the elementary schools. In other words, it is a continuation of the grades of the public school system of the state, with special reference to the industrial pursuits, and, in the courses that are provided as described elsewhere in this catalogue, it aims to give a practical training that shall fit the student to deal with the problems of life.

TUITION.

The tuition fee is \$60 per year, although numerous scholarships give free tuition to many New Hampshire students.

SCHOLARSHIPS.

Conant Scholarships.—There are twenty-five Conant scholarships, each paying \$40 and tuition, \$60—total, \$100. These are to be assigned under the following conditions :

1. They are to be given to young men taking an agricultural course.

2. Each town in Cheshire County is entitled to one scholarship, and Jaffrey is entitled to two.

3. Scholarships not taken by students from Cheshire County, and those in excess of the number of towns, will be assigned to agricultural students, and may be divided at the discretion of the president.

Senatorial Scholarships.—There are twenty-four senatorial scholarships,—one for each senatorial district. Each scholarship is to pay tuition, \$60. Senatorial scholarships not filled can be assigned to students from other localities at the discretion of the faculty; they are open to students in all courses.

Early application should be made for these scholarships. They will be reserved for those respective towns and districts until August 1 of each year, after which they may be otherwise assigned for the year.

These scholarships are given for the purpose of aiding deserving students, and will be withdrawn from those who use tobacco or intoxicating liquors, or show themselves not deserving. Janitorships, work on the farm, etc., also furnish assistance to a considerable extent.

Valentine Smith Scholarships.—Through the generosity of the late Mr. Hamilton Smith of Durham the sum of \$10,000 has been given to the college to establish the Valentine Smith scholarships.

“The income thus accruing to the college shall be given to the graduate of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission to the college; *provided*,

“That this income shall be paid to the student to whom it is awarded, in eight semi-annual payments, at the time appointed for the payment of term bills; and

“That if the student receiving this scholarship shall at any time prove unworthy, in the judgment of the faculty, by reason of defective scholarship or character, he shall forfeit his claim to the student most deserving; and

"That if the student receiving this sholarship shall cease to be a member of the college, the income from this fund, for the unexpired term, shall be awarded to the student most deserving in character and scholarship."

These scholarships yield \$400 annually or one hundred dollars to each holder.

Competitive examinations for this scholarship will be held at the college at the time of the entrance examinations in September, and at no other time.

Grange Scholarships.—Each subordinate and Pomona grange in New Hampshire has the privilege of appointing one student annually to a free scholarship in any of the four-year or two-year courses in the college, each appointment to be good for four years if in a four years' course, and for two years if in a two years' course. Students holding these scholarships will be relieved from paying the annual tuition fee of sixty dollars, but will not be relieved from payment of incidental or other fees. Scholarships may be forfeited at any time by misconduct of the student or by his failure in a sufficient number of studies, or by his inability to meet the entrance requirements. Women may hold these scholarships on the same terms as men.

The method of appointment is entirely at the option of the grange; it may be by election, competitive examination, or otherwise. Holders of grange scholarships must be residents of New Hampshire.

PRIZES.

I. *Bailey Prize.*—Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene, N. H., offer a prize of ten dollars for proficiency in chemistry.

II. *Erskine Mason Memorial Prize.*—Mrs. Erskine Mason, of Stamford, Conn., has invested one hundred dollars as a memorial of her son, a member of the class of 1893, the income of which is to be given, for the present, to that member of the senior class who has made the greatest improvement during his course.

ESTIMATE OF EXPENSES.

Tuition,	Free	\$60.00
Text-books,	\$10.00 to	30.00
Military uniform for new students,	16.00 to	16.00
Drawing instruments and materials,	7.50 to	30.00
Fees*,	20.00 to	20.00
Room rent, including fuel,	30.00 to	50.00
Board, \$3 to \$3.50 per week, for thirty-five weeks,	105.00 to	122.50
Total,	\$188.50	\$328.50

Room rent is estimated on the supposition that two students occupy the same room or suite of rooms.

Rooms may be obtained either furnished or unfurnished. Most of the rooms are in suites, and are in buildings provided with heating apparatus and bath-rooms.

The college has no rooms for students.

For further information, address New Hampshire College, Durham, New Hampshire.

COURSES FOR WOMEN.

Women attending the college may elect any course laid down in the curriculum, subject to the conditions prescribed for all students. They may omit manual labor on the farm and in the shop, and substitute other studies.

The general course, with its electives, is specially prepared for women, and is so planned that special courses may be arranged in literature, languages, history, philosophy, pedagogy, drawing, biology and manual training.

The courses in agriculture and chemistry afford opportunities for the study of the natural sciences, and the engineering courses offer exceptional advantages in mathematics and physics.

*Includes all charges commonly considered extras, except those for breakage and damage to college property.

POST-GRADUATE STUDY.

The college offers opportunities for post-graduate study in agriculture, biology and chemistry.

After the satisfactory completion of an appropriate amount of post-graduate work, advanced degrees will be given.

SPECIAL STUDENTS.

Special students shall be admitted only by vote of the faculty. Any person of mature years (not a candidate for a degree) may be so admitted upon presenting satisfactory evidence of his ability to complete the desired course of study.

REGISTRATION.

All undergraduate students who desire to attend the college during a term are required to register at the registrar's office on or before 4 p. m. of the first day of such term. Every former student registered after the first day of any term shall be charged for such registration a fine of one dollar for the first day and fifty cents additional for each succeeding day, to be remitted only by the president upon presentation of a substantial excuse for the delay.

ATTENDANCE.

All students are required to attend chapel exercises; all male students are required to attend military drill. Attendance upon class work is under the control of the individual instructors. Any instructor may, without faculty action, exclude from examination any student who has been absent from 20 per cent. of the exercises of any class under his charge.

TERM BILLS.

Tuition and fees are payable in advance, in two equal instalments: one on the first day of the fall term and the other on the first day of the winter term, of each year. No

student shall receive his registration card or attend classes until his term bills are paid.

ELECTION OF STUDIES.

Every student shall, on or before the Saturday before the last in each term, notify in writing the secretary of the faculty of his elections for the term following. Any student, who, having made his elections, desires to change, shall make application to the faculty in writing, with a statement in full of his reasons.

Any student who fails to fill out his elective slip on or before the date mentioned, shall pay a fine of one dollar before he can be registered for the studies of the next term, unless he has previously obtained from the secretary of the faculty a written excuse for delay. No student shall be permitted to make changes in courses elected by him after one week from the time of his registration in each term, except by vote of the faculty and the payment of one dollar.

AMOUNT OF WORK.

No student shall be permitted to carry less than sixteen or more than twenty-one credit hours per week of classroom work or its equivalent, without the consent of the faculty.

EXAMINATION ON ENTRANCE DEFICIENCIES.

Students conditioned on entrance examinations may have an opportunity to make up such deficiencies upon the three days preceding the beginning of the fall term, and upon the last Saturday of each term. A student who takes a deficiency examination upon an entrance subject, at any other time, must pay the college one dollar for each examination upon each subject.

Students who have any entrance condition outstanding at the beginning of the third year of residence at the college, or more than one at the beginning of the second year, will

not be allowed to register until such conditions have been removed.

THESIS.

A thesis upon some subject connected with the work of the course taken is required of every candidate for a degree. The subject, together with a written approval of it by the head of the department within which it lies must be submitted to the president before the fifteenth day of December preceding graduation. The completed thesis shall be submitted to the head of the department concerned not later than the second Tuesday preceding Commencement. The thesis must be completed in typewritten and bound form by the Tuesday preceding Commencement and in the hands of the department concerned. The thesis shall be typewritten or printed upon standard thesis paper 8½ by 11 inches, medium weight, neatly bound in black cloth and gilt-lettered on first cover with title, name of author, degree sought and year of graduation. This bound copy shall be approved by the faculty, filed and left with the College Librarian.

GRADUATION.

Those who complete a four years' course or its equivalent will be recommended for the degree of Bachelor of Science. No equivalent for one of the four years' course will be accepted which does not contain an average of at least 18 credit hours per term, in addition to military drill, for four years, and all of the required subjects of the first two years which are common to all of the four-year courses.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding Commencement; and each member of the class may receive a statement of his standing at the office of the registrar at 2 p. m. on the next day, Wednesday. All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

SUNDAY SERVICES.

Although the only church in Durham is nominally Congregational, it is attended by citizens of all denominations, and sectarian lines are never drawn. It is conveniently situated, and with its regular services, its Sunday-school, prayer-meetings and young people's meetings, it offers ample opportunity for religious observance.

SITUATION AND RAILROAD CONNECTIONS.

Durham is situated on the Western Division of the Boston and Maine Railroad, 62 miles from Boston, and about midway between Rockingham Junction and the City of Dover, being five miles from the latter place.

BUILDINGS.

THOMPSON HALL.

Thompson Hall, the main college building, has a length of 128 feet, exclusive of a *porte-cochere* 40 feet long, and a width of 93 feet in the widest part. It is built of granite and brick, and has three stories besides the basement.

The basement contains a blower-room, with apparatus for controlling the heating and ventilation of the building, geological laboratory, a lavatory, and rooms used for storage.

One-half of the first floor is devoted to the library, which is provided with a large, well-lighted reading room for papers and magazines, a reference room for special work, a librarian's room, a delivery room, and shelf space for 50,000 volumes. The remainder of the first floor is used for offices, recitation rooms for mathematics and history, and a waiting room for women.

On the second floor are more offices, the botanical and zoological laboratories, the drawing-room and recitation rooms for biology, mechanical engineering, philosophy and modern languages.

On the third floor is the large hall used as an auditorium, two society rooms, and the bell-boy's room.

The building is lighted by gas and electricity, and provided with the most approved system of heating and ventilation.

LIBRARY BUILDING.

The library building now being erected has a frontage of seventy-six feet and a depth of sixty-five feet, not including the stack extension planned to give shelving room for sixty

thousand volumes. It is a two story building with granite basement and trimmings of Indiana sandstone. This building has been made possible by the generosity of Mr. Andrew Carnegie, and by an arrangement in accordance with which the College assumes the care of the Durham libraries and adds to its building fund a sum of money which Mr. Hamilton Smith, late of Durham, provided for a public library building.

MORRILL HALL.

This building was erected in 1902 at a cost of about \$30,000. It is 110 feet long and 58 feet wide, comprising four stories, including the basement. It is plain and simple in outline, and gives the impression of strength and solidity. The material is brick, laid in Flemish bond, with trimmings of the clear, almost white Suncook granite. These relieve and brighten to a certain extent the general effect of plainness and simplicity. The roof is of slate, and the construction throughout is designed to give the greatest possible security against fire. All the partition walls are of brick, and the steam for heating is taken from the boilers at the central station, near the Mechanical Building. The Johnson system of automatic temperature regulation has been installed. Adequate ventilation is secured throughout the building by means of a large fan in the basement. All the floors are of maple, except the basement, which is cement. Only the ceilings of the rooms are plastered, the side walls being of bare brick, calcimined Indian red.

A vestibule, eight feet wide, runs through the centre of the building the long way on each floor, except the fourth.

In the south end of the basement there is a room 56 by 32 feet, which is used for the exhibition of the different makes of agricultural implements and tools. The north end of the basement is fitted up for a live stock judging room. On the basement floor there is also a lavatory, provided with wash-stands and shower-bath, a bulletin mailing room, a soil-storage room, a fan and heating-room and a janitor's room.

The first floor is occupied by the department of agriculture. It contains two class-rooms—one for agronomy and one for animal industry—a soil physics laboratory with a preparation room attached, an agricultural reading-room, a stenographer's room, the farm superintendent's room, and the offices of the professor and assistant professor of agriculture.

The second floor is occupied by the horticultural department. It contains one class-room, a pomological laboratory, a forestry laboratory, a herbarium room, a horticultural reading-room and the offices of the professor and assistant in horticulture. The second floor is also provided with a refrigerator room, in which the fruits and vegetables used for laboratory work may be preserved. Both the first and second floors are provided with fireproof vaults in which important records and expensive equipment are kept.

CONANT HALL.

Conant Hall contains the laboratories and lecture-rooms for instruction in chemistry, physics, and electrical engineering. It is a substantial brick building, 92 by 70 feet, and three stories high, including the basement. It is heated by steam brought from the shops, lighted by gas and electricity and provided with a system of thorough ventilation. Water, gas, high pressure steam, hydrogen, oxygen, vacuum and blast are supplied through pipes wherever needed, and the lecture rooms in addition have switches controlling both dynamo and battery currents, and arrangements for stereopticon illustration.

The basement contains a small workshop, the battery, photometer, photographic and comparator rooms, a clock room protected by double walls against changes in temperature, an acid room and a water and gas laboratory provided with the necessary fixtures and appliances.

The first floor, with the exception of one room, is occupied by the physics department. It contains the mineralogical laboratory, which is provided with tile-covered desks and other facilities for blowpipe analysis; the junior physical

laboratory; an apparatus room; a reading and reference room for physical and electrical books and periodicals; an electrical laboratory; and the physical lecture-room, which is provided with all necessary conveniences, as before mentioned. For optical experiments the room can be darkened by means of special window-shutters, operated from one of the lecture-desks. A stone pier between the two desks makes it possible to use delicate instruments.

The second floor is given up entirely to the chemical department. It contains storerooms, an organic laboratory, a qualitative laboratory, a private laboratory, a dark room for polariscopic and spectroscopic work, a lecture-room provided with facilities as before described, a quantitative laboratory, and a room for the delicate chemical balances and most important reference works.

The laboratories are fitted up with modern accessories, and with special reference to the kind of work to be performed in each.

SHOPS.

These have been built in order to provide facilities for instruction in the working of wood and metals. The buildings are constructed on the "slow-burning" principle, with thick walls, and heavy, continuous plank floors. The rooms are all well lighted and well ventilated.

The main building is 42 by 106 feet, and two stories high, with a basement 31 by 42 feet. The basement is used as an engine room and laboratory. The largest room on the first floor is the machine shop, where there is opportunity for practice in the operation of working metals by cutting tools, both by hand-work and by machinery. On this floor a lavatory is provided. The second floor is mainly occupied by a wood-shop, in which the common branches of carpentry, joinery and pattern-making are taught. Practice is given in the use of carpenters' tools and in the care and operation of the machines of most general use in wood-working.

Joined to the main shop building and on a level with its basement is a one-story building, 40 by 100 feet, containing the boiler room, forge shop and foundry.

There are four boilers, aggregating 240 horse-power, which furnish steam to all the college buildings, wherever needed for heating or power. A brick chimney, 95 feet high, carries away the waste gases from the furnaces.

In the forge shop instruction is given in forging, welding, tempering and riveting, and in the foundry the student is taught to mold and cast from the various patterns made in the wood-shop.

THE ARMORY.

The armory is a brick building with granite trimmings. The main building is 61 x 99. It has a headhouse, on each corner of which is a tower. One tower is battlemented and is three stories high, to correspond with the headhouse roof, and has a slated peak. The headhouse, or portion of the building nearest the street is 31x46. In the basement of the main building are two bathrooms, one 16x22, containing two shower baths to be used by the faculty and visiting teams. The other bathroom on this floor, size 12x16, is for the use of the students and contains five shower baths; adjoining this is a locker room, 28x30; a drying-room, 5x15; a toilet-room, 8x12, and a room, 8x28, for gymnasium supplies. As this does not take up all the basement floor, there is a space, 37x52, reserved for a swimming pool, bowling alley, ball cage, etc., to be completed at some future time.

On the first floor of the main building is the drill hall or gymnasium, size 58x97, with a balcony in the second story, which furnishes a running track six feet wide.

On entering the building, from the street, there is an office on the right, to be devoted to the uses of the professor of military science, one for the physical culture director, and a private office in the tower. To the left of the hallway is a military lecture room.

On the second floor of the headhouse are the College Club rooms, one 20x43, and the other 10x16. These are fur-

nished with billiard and pool tables; a piano presented to the College Club by the College Alumni Association; easy chairs and window seats, all in mission style furniture.

The equipment of the gymnasium includes chest weights; dumb bells; Indian clubs; wands; bucks; horses; horizontal and parallel bars; traveling rings; ladders; punching bags; etc.

NESMITH HALL.

Nesmith Hall, a brick building two stories in height, is used for the work of the Agricultural Experiment Station. It contains offices and working rooms, a reference library, and chemical, entomological, bacteriological and botanical laboratories.

DAIRY.

The dairy building is a wooden structure of one and one-half stories, with basement. It contains six rooms equipped for manual training in milk testing, milk and cream pasteurizing, cream ripening, butter-making and the care and management of dairy machinery.

The first floor is used for receiving milk and for the separators. On this floor is also the office of the instructor and the laboratory for milk testing. The basement contains the ripening vats, churns and refrigerators, together with the engine.

BARNS.

The dairy barn is a large wooden structure, erected in 1895 at a cost of about \$10,000. The main portion is 45 by 100 feet, two stories high, and with a basement in which are box stalls, calf and sheep pens, a cold storage room, root cellar, feed, dressing and milk rooms. A story and a half L, 35 by 100 feet, with basement, is attached to the main structure. The first floor of the L is on a level with the basement of the main barn and contains stalls to accommodate 56 head of cattle. The basement of the L contains pig

pens, while the loft is used for the storage of feed, fertilizers and machinery. With the exception of the space occupied by a granary, a 120-ton silo and a 12-foot driveway, the upper floors of the main barn are used entirely for hay and forage, there being capacity for about 175 tons.

A second barn of old-style building is used by the agricultural department for the storage of hay, implements and wagons and for stabling the department horses.

A third barn, 25 by 60 feet, recently modeled, is used by the horticultural department for its horses and wagons and the storage of spraying machines and various garden implements.

GREENHOUSES.

The new range of greenhouses has been specially planned and built for carrying on modern and up-to-date work in greenhouse management and handicraft. There are seven distinct houses, besides a propagating hallway. Connected with the glass structure is a workroom, 20 by 30 feet, which also answers as an office for the florist, and is equipped with scales, seed-boxes and other accessories. The basement of the workroom, or potting house, is used for a boiler room and storeroom for potting soils. The attic has two good rooms, one of which is occupied by the greenhouse attendant. The whole system is heated by steam, the boiler being a Lord & Burnham Co. sectional. The houses are piped so that the temperature can be regulated for any kind of crop, and offer exceptional opportunities for experimental work. The main palm house and four of the lateral houses were built by the Lord & Burnham Co., greenhouse contractors, and are of steel superstructure. The other two, together with the passageways to the potting house, are constructed of cypress, with angle iron eaves plates and iron supports. One house is equipped for greenhouse management instruction and each student is given definite laboratory space and prescribed work. Two of the houses have

ground beds and are adapted for forcing vegetables. The remaining houses have raised beds, excepting the centre of the palm house, which has a ground bed.

These houses are lighted with electricity and offer unusual facilities for instruction and experimentation. When students have completed the required greenhouse courses, they are prepared to take positions as florists or gardeners of estates, etc.

LABORATORIES AND EQUIPMENT.

AGRONOMY.

This department is provided with a collection of dried specimens of the different forage crops; the more important varieties of corn, wheat and oats; and with a large number of lantern slides, grass charts and other illustrative material. The soil physics laboratory is equipped with soil bins, a compacting machine, chemical and torsion balances, and various kinds of physical apparatus for the study of soils, including that for the determination of specific gravity and for the making of mechanical analyses.

The agricultural museum contains many of the latest models of the different makes of farm machinery, tools and appliances, including plows, cultivators, harrows, mowers, rakes, corn binders, manure spreaders, different kinds of cattle ties and various makes of patent wire fences.

The college farm, with its 300 acres of land, has a variety of soils and soil conditions suited to the growth of nearly all the important farm crops, and thus offers excellent opportunities for practical work and demonstration in the department of agronomy.

ANIMAL INDUSTRY.

For the various courses in animal industry an extended use is made of the live stock of the college farm. The dairy herd consists of representative animals of the following breeds: Ayrshires, Guernseys, Jerseys and Shorthorns. The college owns six head of horses representing the draft type, and to become acquainted with the trotting and thoroughbred types the students are taken to various stock farms where these types can be inspected and judged.

For the study of the different breeds of sheep and swine the college flock of thoroughbred Southdowns, Dorset Horns, Shropshires and Merinos and herds of medium Yorkshires and Berkshires are used. Representatives of other breeds are rented for practical study and judging.

In the new agricultural building a large room has been fitted up for the judging of live stock, instruments for precise measurements are provided and score cards with a scale of points for each kind of animal are used.

The class-room is provided with a stereopticon lantern and a large collection of lantern slides is used to show the leading individuals of several breeds of live stock. The herd books of the several breeds are made use of in familiarizing the student with methods of tracing pedigrees and the practices of breeders' associations.

HORTICULTURE.

The facilities for instruction in the various lines of horticulture have vastly improved during the past few years. The entire second floor of Morrill Hall is given up to this department and contains offices, lecture-rooms, laboratories, herbarium room, seminary and library room, and a cold-storage room. On the basement floor this department has also in conjunction with the agricultural department a photograph room, soil and carpenter's room, and an implement room. The lecture room is fitted up with a stereopticon lantern. The pomological and vegetable gardening laboratories are of original design and offer every facility for modern work. During the fall term over 100 varieties of apples are studied by the students. Grapes and pears are received from western New York, and other fruits, apples in particular, from Pennsylvania, West Virginia, New York, Ohio, Minnesota, Oregon, various parts of New England and Canada. Large numbers of varieties of vegetables are grown in the experiment station trial grounds, and these offer exceptional opportunities for identification and study in the laboratory for sometime after field conditions have gone by. The

orchards, gardens and grounds also offer opportunities for demonstrating the theories advocated in the lecture-room. Many varieties of different kinds of fruits are to be found in the orchards. These are young, but coming into bearing. The plum orchard has 60 varieties in bearing. Grapes, peaches, apples, cherries and small fruits are also grown at the Experiment Station. Propagation of fruits, shrubs and flowering plants is practised. A fine collection of Vilmorin charts is owned by the department. The collection of lantern slides is continually being enlarged.

COLLEGE FOREST.

A tract of 60 acres of old forest growth is owned by the college. It is located close at hand and offers ample opportunities for studying forestry. The country about Durham presents forestry conditions typical of New England, and the transplanting of trees, sowing of seeds and general questions of forestry management may here be studied in Nature's laboratory.

DAIRY.

All available space in this building is filled with various forms of cream separators, churns, testing apparatus and other dairy appliances. Steam is supplied by the large boilers at the power-house. In addition to the product of the college herd, milk is received from about 25 farms in Durham and vicinity. Through this arrangement the college is able to furnish plenty of milk for practice work and to provide for a most thorough and practical training in dairy and creamery management.

MECHANICAL ENGINEERING.

The basement and westerly rooms of the main shop building are used as engine room and mechanical laboratories and contain a 40 horse-power engine which furnishes power for the shops and electric lighting of the college buildings ;

a shaft-governor, slide-valve engine; a direct acting steam pump; and a large compound duplex pump. This pump receives water under a head of 15 feet through an eight-inch pipe from a reservoir one-half mile distant, and forces it through underground mains to the various hydrants and buildings or through nozzles for measurements during tests. It is fitted with indicator motions and other necessary equipment for complete duty tests. The pump with its long supply pipe, a 10-inch standpipe and a 6,000-gallon tank, furnishes apparatus for an extensive series of hydraulic experiments.

Among other apparatus is a 50,000-pound Olsen machine with the necessary tools and measuring instruments for tension, compression and transverse tests; a 12 horse-power gas engine; a marine gas engine; a Westinghouse air-brake pump with locomotive and tender attachments; steam and gas engine indicators; a surface condenser, with a capacity of 2,000 lbs. per hour, fitted with a $5\frac{1}{2} \times 8 \times 7$ air pump; Bristol pyromoter reading to 2,800 degrees F.; Pitot tubes; differential gauges; cement testing machine with the necessary sieves and other apparatus for testing cement according to the recommendations of the committee for cement testing; and the usual supply of scales, gauges, thermometers and small apparatus. The three sectional boilers and the 66" return tubular boiler, with the 95 ft. brick stack are used for boiler tests and flue gas analysis, by means of the Orsat apparatus, pyrometers and thermometers reading to 1,000 F. The 66" boiler is also fitted with two forms of forced draught apparatus thus giving an opportunity for commercial tests with different grades of fuel, especially the cheaper grades. The ventilating fans and engines of the various buildings as well as the engines at the creamery, electrical laboratory and barn are available for testing. Opportunity is not only given for the student to test the engine or machine but to become familiar with its construction and operation.

In addition to the instruction given in the laboratory, excursions are made to various outside power plants, and

when practicable, tests are made, thus enabling the student to become familiar with various types of engineering practice. Each year the proprietors of a nearby mill allow the class in valve gears to take exercises in valve setting on their 50 horse-power Corliss engine.

WOOD-SHOP.

This occupies the larger part of the second story of the main building. It is supplied with benches and the necessary tools to accommodate 20 students at one time. Other equipment consists of a circular saw, board-planer, buzz-planer, jig-saw, speed-lathes, a large pattern maker's lathe with molding and boring attachments. A stock and pattern room on the same floor provides storage for lumber, patterns and unfinished work. The course in woodwork consists of practice in carpentry, joinery, cabinet-making and turning. Much of the advanced work consists of making apparatus and cabinets for use about the college. Following this work is the course in pattern-making, special attention being given to methods of design.

MACHINE SHOP.

The equipment is as follows: seven engine lathes, a 14-inch by 6-foot speed-lathe, built by students; a vertical drill, built by students; a 30-inch Flather planer; a universal milling machine with gear-cutting and spiral attachments; shaper; power hack saw; 12 benches with vises, and a large number of small tools, including micrometer, calipers and gauges necessary for accurate work. The lathes in the wood-shop were built here, and several more are in process of construction.

FORGE SHOP.

This contains 13 Sturtevant down-draft forges with anvils and necessary tools. The blast to the forges is furnished by a No. 4 blower, and the smoke carried away by a 60-inch exhauster. These are driven by a 3 by 5 vertical

engine. The student is taught the principles of forging, welding and tempering of iron and steel. Special attention is given to accuracy of dimensions as well as of shape and finish.

FOUNDRY.

The foundry is supplied with a furnace, molding benches, flasks and bench tools. Foundry work is taken in connection with the course in pattern making, and the student molds and casts from the patterns he has constructed in the wood-shop. Castings are made in iron, brass and alloy, and tests are made on "test bars" of each.

PHYSICS AND ELECTRICITY.

The physical laboratory is equipped with a good collection of the usual apparatus for laboratory work and lecture-room illustration, to which will be continually added pieces purchased or made in the college shop.

In the junior laboratory of physics there has been added apparatus for studying absorption phenomena and the comparison of spectra of films, liquids, metals, etc.; for measuring the angles of crystals and indices of refraction; for verifying the laws of refraction and total reflection of light; for determining the moment of inertia of various forms of specimens.

In electricity and magnetism the equipment includes instruments of high precision and of the latest forms, such as: a magnetometer for studying the intensity of the earth's magnetism; a universal tangent galvanometer capable of assuming a variety of forms and measuring currents from a small fraction of an ampere to one hundred amperes; a high grade, four-spool Thomson reflecting galvanometer; a Ryan electrometer for tracing pressure and current waves; a standard ballistic galvanometer; an Ayrton & Perry's variable standard of self-induction, as well as others of less accuracy for elementary work; a complete photometer equipment for comparing incandescent and arc lamps, and

the distribution of light from the latter for both open and inclosed arcs; a small, low-potential testing unit, consisting of a universal alternator belted to a direct current motor and capable of adjustment to be driven from either the direct or alternating side; a low-potential transformer, either side arranged to be connected to the universal alternator or to the secondary of the transformer on the lighting system; a bank of lamps for illustrating the various methods of distributing from mains for lighting systems, or affording loads in obtaining characteristics, deficiencies, etc.; and standard forms of voltmeters and ammeters.

For more strictly electrical engineering work, the department has the 500-light alternator used in lighting the college buildings, a direct current "exciter" dynamo, all the apparatus of a complete 55-light Edison isolated electric lighting plant, arc and incandescent lamps, and standard forms of voltmeter, ammeter and transformer.

In the dynamo laboratory the Westinghouse junior engine is capable of developing about 23-brake horse power under 100 pounds steam pressure. This engine, being on a practically independent line of steam pipe, is expected to maintain good speed regulation of the main line shaft to which it is belted and from which power is delivered to countershafts, and thence to the various dynamos and workshops of the department. This workshop is equipped with a good set of wood and metal working tools, and a 14-inch, 8-foot bed Flather engine lathe, with complete attachments; also, a small speed lathe for drilling and wood working purposes, a Union combination saw with scroll, moulding and boring attachments, and a small hand-driven metal planer.

CHEMISTRY.

The several chemical laboratories are modern in design, commodious and well equipped. Each is supplied with the latest forms of apparatus required for its particular work. Besides all necessary glass and porcelain ware, this includes water baths, drying ovens, combustion, muffle and assay

furnaces. platinum dishes and crucibles, polariscope, spectroscope, balances, lantern and other lecture appliances, etc.

ZOOLOGY.

The zoological laboratory is well supplied with aquaria, microscopes, dissecting tools, charts, reference books and collections. The latter include a representative display of the birds of New Hampshire, and a very large collection of the insects of the state arranged in glass-covered boxes. New tables have recently been added to the equipment of this laboratory.

BOTANY.

The botanical laboratory is supplied with a good herbarium, microscopes and the other necessary appliances.

SURVEYING.

The surveying instruments are sufficient in number and of the most approved pattern.

DRAWING.

At present rooms in Thompson Hall are devoted to the use of the drawing department. For free-hand model-drawing and for mathematical drawing there is a good supply of geometric models; and for free-hand industrial drawing the nucleus of a good collection exists, consisting of plaster casts of historic ornament, details of human form and antique sculpture, as well as vases and common objects. The models for machine drawing are few, but various machines in other departments are available for this work.

There is the beginning of a good working library.

MUSEUM.

The museum had for a nucleus the collections made during the state geological survey. To this additions have

been made from various sources. Many specimens are being collected to illustrate zoology, especially entomology.

LIBRARY.

The library of the college consists of about 12,000 bound volumes and 6,000 pamphlets. A large part of these are new and expensive books, making good working libraries for the different departments of instruction, including economic science and English and American literature.

Students also have the free use of the Durham public library of about 8,000 well-selected volumes.

The college supports a reading-room, which is well supplied with the leading American and foreign periodicals.

These libraries are to be placed in the new library building which will be ready for occupancy at the beginning of the next college year. See page 31.

This building is to give liberal provisions for reference and research work. While the large part of the books are to be placed in the three story stack extension, shelving room for 5,000 volumes is to be provided in the large reference room in the main building. There is also a provision for the future in the second story rooms which can be used for department libraries when the reference room proves inadequate.

FOUR-YEAR COURSES.

AGRICULTURAL COURSE.

This course is arranged especially for the general education and scientific training of students to fit them in various economic branches, such as agronomy, animal husbandry, biology, agricultural chemistry, entomology, forestry, horticulture, veterinary science, etc. Graduates are supposed to be qualified to take positions such as farm superintendents, foremen, stock raisers, dairy farmers, creamery managers, dairymen, superintendents of estates, parks or cemeteries, fruit-growers, gardeners, florists, nurserymen, landscape gardeners, foresters, poultrymen, ranchmen, etc.

It is expected that these same men will be equally prepared, depending upon individual tastes, to take positions as teachers and assistants in colleges and experiment stations.

The aim is to give a broad general foundation of pure and applied science. Laboratory methods are used in connection with lecture and recitation work. Seminary courses are also given, especially for seniors and advanced students.

BIOLOGICAL DIVISION OF THE AGRICULTURAL COURSE.

The biological division of the agricultural course is for the benefit of those students who desire to make a special study of some phase of natural history. It leads to such positions as teachers of botany and zoology in high schools and colleges, entomologists for experiment stations, state inspectors of nursery grounds, etc. During the first two years the student pursues the regular studies of the agricultural course, but in his junior year he begins to specialize in botany and zoology, a considerable proportion of his time during the rest of his course being given to these sub-

jects. Students taking this course will elect, with the advice of the instructors in charge, six hours per week of biological work in the junior year and seven hours per week during the senior year, exclusive of thesis. Two years of German required.

CHEMICAL DIVISION OF THE AGRICULTURAL COURSE.

The work of this division is especially intended to give a thorough grounding in the principles of chemistry as applied to agriculture and agricultural chemical analyses, and to train the student thoroughly in all kinds of manipulation required of the chemist in experiment stations, large dairy establishments, fertilizer works, etc.

Instruction is given mainly by personal supervision in the laboratory, accompanied by lectures, themes, recitations; and, as in the course in technical chemistry, the studies are arranged to meet the needs of the individual. Students wishing to take this course will elect, with the advice of the instructors in charge, six hours per week of chemical work during the junior year, and seven hours per week during the senior year. Two years of German will be required.

COURSE IN MECHANICAL ENGINEERING.

Mechanical engineering is concerned with the design, construction, care and operation of machinery.

The special studies are: mathematical, including a large amount of drawing; technical, pertaining directly to the professional work of the engineer; and general.

The study of the scientific principles underlying the work of the engineer is accompanied throughout the course by actual practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, chemical and physical laboratories.

ELECTRICAL ENGINEERING COURSE.

The electrical engineering course is intended to meet the demands of a young man fitting himself for practical and professional engineering, in connection with the various applications of electricity.

By means of lectures, recitations and laboratory work, the subjects of the course are brought to the attention of the student in such a manner as to emphasize not only the present needs of the practitioner and engineer, but to give him the groundwork that will enable him to grasp and understand the constantly increasing number of problems that require solution.

The instruction aims to impart a complete practical and theoretical knowledge of the best modern types of electrical machines and appliances and the methods of designing, building and operating them.

The rapid progress in recent years in applying electricity to commercial uses, renders it difficult, if not impossible, for one without a technical education to gain prominence and be intrusted with its more responsible positions.

COURSE IN CHEMICAL ENGINEERING.

This course is intended to fit for the career of a professional chemist or chemical engineer, and to give a good foundation for original and independent chemical research.

Instruction is imparted by lectures, recitations and a large amount of carefully supervised laboratory work. The laboratory course is largely an individual one, and the work of each student is conducted with reference not only to the particular object he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a thorough training in German and French, to enable him to read with ease the chemical literature; a thorough grounding in mathematics, necessary for advanced theoretical chemistry or chemical engineering; a somewhat limited amount of special engineering work, both mechanical and electrical; and a thorough undergraduate training

in theoretical and applied chemistry. He is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference works and chemical periodicals which the library contains. Owing to the fact that the laboratories are becoming overcrowded the number of students taking this course is limited to six in each class. These six are chosen in the early part of the Sophomore year from among those who have applied. Fitness to become successful chemists will alone determine the choice made.

GENERAL COURSE.

The general course in its original form was established in response to the demand that special provisions should be made for women. It has been broadened and improved by additional studies, and by an extensive scheme of elections, until in its present form it offers to either men or women "a liberal education upon a scientific basis."

MILITARY DEPARTMENT.

This department is in charge of an officer of the United States regular army, detailed by the war department, as professor of military science and tactics. Military instruction, which is required by law, is both theoretical and practical, the latter largely during the fall and spring terms, the former having special reference to the duties of the line.

The organization is a battalion of two companies, officered by cadets selected for character, soldierly bearing and efficiency. The federal government has furnished rifles and equipment for 200 men. Attention is paid to rifle practice, the government supplying ample ammunition and target materials, and the college a good range. The rolling country in the vicinity of the college furnishes the best opportunities for extended order drill and field exercises, the athletic field for close order drills and the new gymnasium and drill shed gives ample room for indoor work.

The cadets wear, whenever on military duty and may at other times provided the complete uniforms are worn, cadet gray uniforms with black trouser stripes, black braid on cuffs and collars of blouses and blue caps, army regulation. The letters N. H. C. are embroidered in gold on each side of blouse collar. The cost of such a uniform does not exceed \$16 and the wearing of such does away with the necessity of purchasing a civilian suit for college use.

Service in this department is optional for members of the senior class, all other students, excepting those presenting surgeon's certificates of disability, are required to attend both drills and recitations.

Upon the graduation of each class, the names of such students as have shown special aptitude for military service are reported to the military secretary of the army and to the adjutant-general of the state. The names of the three most distinguished students in this department are inserted in the United States army register

REQUIREMENTS FOR ADMISSION TO FOUR-YEAR COURSES.

All candidates for admission to college must present satisfactory testimonials of good moral character.

Candidates for admission to the freshman class must offer studies amounting to a total of 14 units.

AGRICULTURAL COURSE.

Candidates for admission who intend to take the Agricultural Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group A.....	3 units
B.....	1 unit
C.....	2 units
D..... (Physics and Botany)	2 units
E.....	2 units
	10 units
(Optional)	4 units

GENERAL COURSE.

Candidates for admission who intend to take the General Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group A.....	3 units
B.....	2 units
C.....	2 units
D..... (Physics)	1 unit
E.....	2 units
	10 units
(Optional)	4 units

Total 14 units

ENGINEERING AND CHEMICAL COURSES.

Required Group A.....	3 units
B.....	1 unit
C.....	3 units
D..... (Physics)	1 unit
E.....	2 units
	<hr/>
	10 units
	(Optional) 4 units
	<hr/>
Total	14 units

GROUP A.

English.—The New England College Entrance Requirements in reading and study,—three periods a week for four years.

Reading and Practice. Each candidate will be required to present evidence of a general knowledge of the substance of the books mentioned below and to answer simple questions on the lives of their authors. The examination will usually be the writing of one or two paragraphs on each of several topics. The treatment of these topics is designed to test the power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of this test the candidate may present an exercise book, certified by his instructor, containing compositions or other written work done in connection with the reading of the books.

In 1907 and 1908 it will be based upon: Shakespeare's *Macbeth* and *The Merchant of Venice*; The Sir Roger de Coverley Papers in *The Spectator*; Irving's *Life of Goldsmith*; Coleridge's *The Ancient Mariner*; Scott's *Ivanhoe* and *The Lady of the Lake*; Tennyson's *Gareth and Lynette*, *Lancelot and Elaine*, and *The Passing of Arthur*; Lowell's *The Vision of Sir Launfal*; George Eliot's *Silas Marner*.

Study and Practice. This part of the examination presupposes a careful study of the works named below. The examination will be upon subject-matter, form and struc-

ture; and will also test the candidate's ability to express his knowledge with clearness and accuracy.

In 1907 and 1908 it will be based upon: Shakespeare's Julius Cæsar; Milton's *L'Allegro*, *Il Penseroso*, *Comus*, and *Lycidas*; Burke's Speech on Conciliation with America; Macaulay's Essay on Milton and Life of Johnson.

—3 units.

GROUP B.

The work offered for each unit in History must consist of at least three exercises per week during one year of the high school course. If one unit is offered it may be for either American History or Ancient History. If two or more units are offered, one unit must be for American History and one for Ancient History. In case one year has been given to American History and two years to Grecian and Roman History, either with or without other Ancient History, credit will be given for three units. For details of preparatory work in History reference is made to "A History Syllabus for Secondary Schools, by the New England History Teachers' Association." Boston, D. C. Heath & Co., 1904.

1. American History and Civics.

The History requirements are covered by Channing's Students' History, or by Hart's Essentials, with the collateral work. The work in Civics must include at least a knowledge of the Constitution of the United States.

2. Ancient History.

Wolfson's Essentials or an equivalent, with the collateral work, or, the History of Greece and the History of Rome as given in works like Myers' History of Greece, Morey's Outlines of Greek History, Allen's Roman People, Myers' Rome and Morey's Outlines of Roman History.

—1 unit.

3. English History.

The amount of English History required is represented by Gardiner's Students' History, by Larned's or Montgomery's History, or by Walker's Essentials, with the collateral work.

—1 unit.

4. Mediæval and Modern History.

Harding's Essentials of Mediæval and Modern History with the collateral work, or Myers' Mediæval and Modern History, or an equivalent.

—1 unit.

GROUP C.

Algebra through quadratic equations, including radicals and fractional and negative exponents, and Plane Geometry.

—2 units.

SOLID GEOMETRY.

The equivalent of Wells' presentation.

—1 unit.

PLANE TRIGONOMETRY.

The equivalent of Wentworth's presentation.

—1 unit.

GROUP D.

PHYSICS.

The preparation required for entrance in Physics shall be an equivalent of 75 class exercises, one hour each in length.

When certificates are offered, they should state the number of exercises and time allotted to each exercise.

—1 unit.

BOTANY.

Gray's Lessons in Botany with a herbarium of 50 plants or Coulter's Plant Relations with laboratory work or an approved equivalent.

—1 unit.

ZOOLOGY.

Davenport's Introduction or an approved equivalent.

— $\frac{1}{2}$ unit.

PHYSICAL GEOGRAPHY.

Davis' Elementary or an approved equivalent.

— $\frac{1}{2}$ unit.

GEOLOGY.

Leconte's Compend or an approved equivalent.

— $\frac{1}{2}$ unit.

CHEMISTRY.

Elementary Inorganic Chemistry equivalent to the work covered in Remsen's Briefer Course, Storer & Lindsay's Manual, Witham's Elements or Newell's Descriptive Chemistry, accompanied in each instance with laboratory practice.

— $\frac{1}{2}$ unit.

GROUP E.

It is expected that the student will give two years to the preparation of the language offered. The requirements are as follows:

In German the student will be held responsible for the conjugations of strong and weak verbs, the declensions of articles, nouns, adjectives and pronouns, the elements of syntax, the uses of the modal auxiliaries and the translation from English into German of simple connected passages based on one of the books read. More attention, however, is paid to the translation from German into idiomatic English. The student should read at least 200 pages of German prose. The following books are recommended:

1. Collar's First Year German (Ginn & Co.); Kaiser and Montesser's Brief German Course (American Book Co.); Huss, German Reader (D. C. Heath & Co.); Andersen, Märchen; Brandt, German Reader; Lange's Beginners' German Book (Allyn &

Bacon); Carruth's German Reader (Ginn & Co.); Stern's Geschichten vom Rhein (Com. Bk. Co.).

2. Hillern, Hoher als die Kirche; Riehl, Der Fluch der Schönheit; Storm, Immensee; Baumbach's Der Schwiegersohn; Gerstacker, Irrfahrten; Heine, Die Haizreise; Freytag, Aus dem Staat Friedrichs des Grossen.

—2 units.

In French the applicant is expected to be familiar with the whole subject of French grammar, and to be able to translate from English into French simple connected passages based on one of the books read. More attention, however, is paid to the translation from French into idiomatic English. The student should read at least 400 pages. The following books are recommended:

1. Fraser & Squair's French Grammar (Heath); Laboulaye, Contes Bleus (Heath); Colin, Contes et Saynetes (Ginn & Co.); Super, French Reader; Rollins, French Reader (Allyn & Bacon); Aldrich & Foster's French Reader (Ginn & Co.); Bruno's Le Tour de la France (American Book Co.).

2. Halévy, L'Abbé Constantin; Mérimée, Colomba; Erckmann-Chatrian, Le Conscrit de 1813; Dumas, La Tulipe Noire; Daudet, La Belle Nivernaise; Berthet, Le Pacte de Famine; Sand, La Mare au Diable.

—2 units.

GROUP F.

Students entering from approved schools may receive credit in their certificates for the following work in Latin or Greek.

LATIN.

Grammar and four books of Cæsar. Two years' work.

—2 units.

Virgil, six books.

Cicero, six orations.

—2 units.

GREEK.

Books I and II of Xenophon's Anabasis, Books III and IV of the Anabasis or their equivalent in other Attic prose, and 1,500 lines of Homer.

—2 units.

In place of examinations, certificates will be received from approved preparatory schools in New England. Approval of a school will be withdrawn whenever it appears that the work of the school does not reach the standard required by the college. No certificate will be accepted from a private tutor or instructor.

Certificates should meet the requirements *in full*; in case of exceptions the candidate will be examined on any requirement not covered by the certificate. If the certificate makes exceptions in more than a third of the work required for admission to any course, or if the certificate makes *any* exception in the case of a student who has not regularly graduated from an approved school, the certificate will not be accepted and the student will be examined on all the requirements.

Certificates will be accepted for that work only which has been done in the certifying school, or which is necessarily involved in the work done there; work done in the grammar school must not be certified unless reviewed in the high school.

Divided certificates from two or more schools will be accepted when the preparatory work has been done in more than one institution.

Certificate forms will be furnished upon application.

Candidates for advanced standing are also examined in the studies that have been pursued by the class which they propose to enter.

Examinations will be given, in the subjects presented for admission, on the Tuesday and Wednesday preceding the beginning of the college year. Candidates will present themselves with their credentials on the first day of the examination. See Calendar.

REQUIREMENTS FOR GRADUATION FROM FOUR-YEAR COURSES.

The degree of Bachelor of Science will be conferred upon those who complete a four years course or its equivalent.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding Commencement; and each member of the class may receive a statement of his standing at the office of the registrar at 2 p. m. on the next day, Wednesday. All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

Each candidate for a degree must prepare a thesis on some subject relating to the studies he has taken.

DESCRIPTION OF STUDIES.

AGRICULTURE.

The rapid development of the science of agriculture has made it necessary to divide the subject into several distinct branches or subdivisions, and to give to each of these branches a definite name. Accordingly the various agricultural studies will be found grouped under the following heads: Agronomy, or technical agriculture; Zootechny, or animal industry; Agrotechny, or dairying; Rural Engineering and Farm Economy.

AGRONOMY.

PROF. TAYLOR.

Agriculture 1. Principles of Agriculture.

Lectures and recitations upon the elementary principles of agriculture, including a study of the soil, the plant and the animal, and the relations of each to the other. The course is given to the First Year Two-Year Students only, and forms a basis for the succeeding courses.

Three exercises per week. F.

Agriculture 2. Farm Equipment.

Lectures and recitations upon the selection, planning and equipment of farms; fences and fencing material; drains and drainage; farm wells; objects, methods and implements of tillage; cattle-ties, mangers, etc. Practical exercises in leveling and laying out of drains and in the preparation of plans and maps of farms. For Agricultural Juniors and Second Year Two-Year Students.

Three exercises per week. F.

Agriculture 3. Soil Physics.

Lectures and recitations upon the formation, kinds and physical properties of soils; the movements and conservation of soil moisture; the relation of heat and air to soil; the nature and physical effects of tillage and fertilizers; laboratory work and experimentation with soils to show the physical effects of different conditions and texture. For Agricultural Juniors and Second Year Two-Year students.

Three exercises per week. W.

Agriculture 4. Farm Crops.

Lectures and recitations upon the history, use, methods of culture, harvesting, storing and marketing of farm crops; practical work in judging and scoring the different varieties of grain, together with a study of growing and dried specimens of grasses, clover, rape and other forage crops. For Agricultural Juniors and Second Year Two-Year Students.

Three exercises per week. S.

Agriculture 5. Manures and Fertilizers.

The course will consist of lectures and recitations, with a brief review of the principles of plant nutrition. There will be considered in detail the constituents of farm manures and chemical fertilizers; care of manures; different methods of application, and the modifications required by different soils and crops. Elective for Agricultural Seniors; required for Second Year Two-Year Students.

Three exercises per week. W.

Agriculture 6. Origin of Soils and Soil Management.

Lectures and recitations upon the origin, distribution and classification of soils from a geological standpoint; their classification upon the basis of texture; soil maps and mapping; the improvement of soils by different methods of cultivation, drainage, rotation of crops and green-manuring; the establishment and maintenance of good tilth. Laboratory experimentation. Elective for Agricultural Seniors.

Two exercises per week. W.

ZOOTECHNY, OR ANIMAL INDUSTRY.

ASST. PROF. SHAW.

Agriculture 10. Principles of Breeding.

Lectures and recitations upon the laws of heredity, its operation under various conditions; value of selection in improving and maintaining a high standard of excellence in farm stock; variation, its extent and cause; methods of breeding, including a discussion of inbreeding, crossing and grading. Practice will be given in tracing and writing pedigrees. For Agricultural Juniors.

Three exercises per week. W.

Agriculture 11. Veterinary Elements.

Lectures and recitations upon the construction and functions of the animal body; holding a post-mortem; simple farm medicines, modes of application; care of sick animals; breeding and some of its effects; common farm operations. For Agricultural Juniors and Second Year Two-Year Students.

Four exercises per week. W.

Agriculture 12. Animal Diseases.

Lectures and recitations upon the common infectious and contagious diseases affecting farm animals; their causes and methods of treatment. This course must be preceded by Course 11. For Agricultural Juniors and Second Year Two-Year Students.

Three exercises per week. S.

Agriculture 13. Stock Feeding.

Lectures and recitations upon the laws of nutrition; composition and digestibility of feeding stuffs; influence of feed on the animal body; preservation and preparation of coarse fodders, ensilage; grinding, steaming and cooking food. A study of the leading cereals and their by-products. Practice will be given in computing and compounding rations for various purposes. For Agricultural Juniors and Second Year Two-Year Students.

Four exercises per week. S.

Agriculture 14. Animal Mechanics.

Lectures and recitations upon the principles of mechanics as applied to the animal machine; the proportions and conformation

of horses for speed and for draft; modes of progression or the various gaits of the horse. Practical exercises in measuring animals and testing the value of given measurements for given purposes. Course to be given every other year, beginning with 1905. Elective for Agricultural Seniors.

Four exercises per week. F.

Agriculture 18. Animal Husbandry.

This course consists of lectures and recitations upon the different breeds of live stock; the principles of stock breeding and feeding; the care and management of stock and the raising of poultry. It is a general elementary course especially arranged for the First Year Two-Year Students.

Three exercises per week. F.

Agriculture 19. Breeds of Cattle and Sheep.

Lectures and recitations upon the origin, history, characteristics, adaptability and management of the different breeds of cattle and sheep. In the study of cattle the beef breeds are considered as to the demands of the market, and the preparation of cattle for sale and exhibition; the dairy breeds are studied from the standpoint of milk and butter production and the selection of individuals for the dairy herd.

In the study of sheep particular attention is given to their care under various conditions, the raising of early lambs and the different grades, uses and value of wool. One afternoon each week for judging the different breeds.

For Agricultural Sophomores and Second Year Two-Year Students.

Three exercises per week. F.

Agriculture 20. Breeds of Horses and Swine.

Lectures and recitations upon the origin, history, characteristics and management of the different breeds. The breeding and classification of horses for the market; training and the proper methods of harnessing and hitching. The preparation of swine for exhibition; the influence of different kinds of food upon pork production. One afternoon each week for judging and scoring.

For Agricultural Sophomores and Second Year Two-Year Students.

Three exercises per week. S.

Agriculture 21. Poultry.

This course consists of lectures and recitations upon the different classes and varieties of poultry; the subject of breeding and feeding; the location and building of poultry houses; a study of incubators and brooders; the shipping of poultry and eggs and the methods of preventing disease. Practice will be given in scoring some of the leading varieties.

Elective for Agricultural Seniors and Second Year Two-Year Students.

Two exercises per week. W.

RURAL ENGINEERING AND FARM ECONOMY.

PROF. TAYLOR.

Agriculture 15. Agricultural Seminary.

This course consists of library and reference work and a study of current agricultural literature. Each student will prepare during the term a certain number of abstracts, reports of papers upon topics relating to agriculture. For Agricultural Seniors.

Two exercises per week. F.

Agriculture 16. Rural Architecture and Farm Mechanics.

Lectures and recitations upon the principles of construction of farm buildings; barns and silos; construction and maintenance of country roads; principles of draft; farm motors and machinery. Practical work in testing and comparisons of various makes and kinds of farm machinery. For Agricultural Seniors.

Three exercises per week. S.

Agriculture 17. History of Agriculture and Rural Economics.

Lectures and recitations upon the history of agriculture from early Egyptian to modern American; present agricultural methods and systems in various countries; cost and relative profits of the different systems of farm operations in the United States. For Agricultural Seniors.

Three exercises per week. S.

BOTANY.

ASSO. PROF. BROOKS.

1. Introductory Botany.

A study of the general structure and the life processes of plants by means of recitations and laboratory work. For First Year Two-Year Students.

Three exercises per week. - F.

2. Cryptogamic Botany.

Recitations and laboratory work on a number of lower forms of plant life. Open to First Year Two-Year Students who have completed Course 1.

Three exercises per week. W.

3. Structural Botany.

A study of structure and reproduction in the higher plants; plant societies and plant families. Recitations, lectures and laboratory work. Open to First Year Two-Year Students who have completed Course 2.

Three exercises per week. S.

4. Plant Diseases.

A study by means of lectures, recitations and laboratory work of some of the more important fungous diseases and the means of preventing their injuries. For Second Year Two-Year Students.

Three exercises per week. F.

5, 6, 7. Advanced Botany.

Three exercises per week for the senior year. Arranged to suit individual needs of those who have taken Courses 8 to 14.

8. Plant Physiology.

Lectures and laboratory studies on plant structures as related to plant activities. For Agricultural and General Freshmen.

Three exercises per week. S.

9. Cryptogamic Botany.

A study of a representative series of cryptogams, beginning with the lower and advancing to the higher forms. Special at-

tention will be given to parasitic fungi. For Agricultural and General Sophomores.

Three exercises per week. F.

10. Plant Morphology.

A continuation of the series of plant forms begun in Course 6, including a study of vascular cryptogams, gymnosperms and angiosperms. Lectures and laboratory studies. Open to students who have completed Courses 5 and 6.

Three exercises per week. W.

11. Ecology and Taxonomy.

A study of the higher plants represented in the local flora, with reference to their environment; plant societies and plant families. Lectures, laboratory and field work. Open to students who have taken Course 10.

Two exercises per week. S.

12. Mycology.

A study of representative groups of fungi, including the bacteria; culture methods and pathological work with fungous diseases. Lectures, laboratory and field work. Open to students who have completed Course 11.

Three exercises per week. F.

13. Histology.

A minute study of plant cells and plant tissues; starches, aleurones and other cell contents; use of reagents and stains; cutting and mounting of sections. Lectures and laboratory work. Open to students who have completed Course 11.

Three exercises per week. W.

14. Advanced Physiology.

Lectures and experimental work on absorption, nutrition, growth, respiration, irritability and the influences that affect them. Open to students who have completed Course 11.

Three exercises per week. S.

CHEMISTRY.

ORGANIC CHEMISTRY—PROF. MORSE.

INORGANIC CHEMISTRY—PROF. PARSONS, MR. JAMES,
MR. CLARK.

1. Inorganic Chemistry.

Lectures and recitations on general and theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solutions of chemical problems will be required. Required of all Freshmen.

Three exercises per week. F.

2. Inorganic Chemistry.

Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc.

Open only to students who have completed Course 1.

Three exercises per week. W.

3. Organic Chemistry.

Course 3 will consist of lectures and recitations on the chemistry of the carbon compounds, together with the study of their properties. For Agricultural and Chemical Freshmen. Elective for General Freshmen.

Open only to students who have completed Courses 1 and 2.

Three exercises per week. S.

4. Qualitative Chemical Analysis.

Course 4 consists of laboratory practice, with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases and to keep a full set of notes. He will have practice in the writing of reactions and will fill out numerous slips containing questions bearing upon his work. For Chemical Sophomores.

Agricultural and General Sophomores, three exercises per week. F. and W.

Open only to students who have completed Course 1.

Five exercises per week. F.

5. Qualitative Chemical Analysis.

A shorter course arranged especially for Engineering Sophomores.

Open only to engineering students who have completed Course 1.

Two exercises per week. F. and W.

6. Chemistry of Plant Growth.

The composition of plants at different stages of growth and the conditions necessary for their development. This subject must be preceded by Chemistry Courses 1, 2 and 3. For Agricultural and Chemical Juniors; elective for General Juniors.

Three exercises per week. F.

7. Chemistry of Food Nutrition.

These subjects include the composition of foods and the animal body; the assimilation of the former by the latter and the principles underlying a rational diet. This subject should be preceded by Course 6. For Agricultural and Chemical Juniors; elective for General Juniors.

Two exercises per week. W.

8. Organic Reactions.

Recitations and laboratory practice on qualitative organic analysis and reactions. For Chemical Sophomores.

Open only to students who have completed Course 3.

Two exercises per week. S.

9. Organic Chemistry.

Course 9, for Juniors in the Chemical Division of the Agricultural Course, and in the Chemical Engineering Course, consists of laboratory practice by the students in preparing and purifying products relating to their respective lines of work.

Open only to students who have completed Course 3.

Two exercises per week. F.

10. Quantitative Analysis.

A preliminary course in quantitative analysis to familiarize the student with the general methods of chemical manipulation. For Chemical Sophomores. Elective in the general course in Sophomore, Junior and Senior years.

Open only to students who have completed Chemistry 4.

Seventy exercises. Number per week varies with course.

11. Advanced Quantitative Analysis.

Course 11 is arranged for students of the Chemical Courses, and is intended to fit them for work in the laboratories of agricultural experiment stations, fertilizer works, iron works, sugar refineries, etc., and for the duties of the public analyst. This course will be made to fit the end which each has in view, and will be largely an individual one. For those students in the Chemical Division of the Agricultural Course the analyses made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, foodstuffs, sugars, etc. For the student wishing to enter metallurgical works, the analyses will be in the main upon iron, steel and other metals, ores, limestones, slags, alloys, fuels, etc. As a preparation for the study of medicine, work will be done on poisons, foods, drugs, urine, etc. Other lines will be arranged to meet the wants of the individual student. Each student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary and industrial chemistry, in order to lay a foundation for any future work which may be required of him. A short course in gas and oil analysis will also be provided. For Chemical and General students.

Open only to students who have completed Course 10.

Number and time of exercises varies with the course.

12. Chemical Journals, Methods, etc.

The work consists of the study of current chemical literature, which is mainly in the German language, with recitations once a week throughout the year. Each student will be expected to prepare abstracts, reports, criticisms, etc., upon assigned articles. For Chemical Seniors.

Open to students who have begun Course 11.

One exercise per week through the year.

13. Industrial Chemistry.

Course 13 consists of lectures on chemical manufactures, such as sugar, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints, dyes, soaps, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern views; and trips to the leading New England cities, to examine important chemical manufactures, will be taken as far as practicable. For Chemical Juniors.

Open only to those who have completed Courses 1 and 2.

Two exercises per week. W.

14. Metallurgy.

Course 14 consists of lectures describing the processes employed in the smelting of the ores of iron, lead, copper, zinc, silver, gold, etc., and upon the methods used in refining these metals. The lectures are illustrated by stereopticon and by specimens of metallurgical products. For Chemical Juniors.

Open only to those who have completed Courses 1 and 2.

Two exercises per week. S.

15. Physical Chemistry, Lectures.

The work consists of advanced study of chemical theory. Practical experiments will be performed, with the aid of the student in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, ionization, electrolysis, molecular and atomic volume, thermo chemistry, equilibrium, the phase rule, etc., will take up much of the time.

Course 15 comes in alternate years with Course 13 and is open to students who have completed Courses 1, 2 and 11.

Three exercises per week. W.

16. Physical Chemistry, Lectures.

A continuation of Course 15, and is given in alternate years with Course 14.

Three exercises per week. S.

17. Agricultural Analysis.

This course is arranged especially for students of the Agricultural Course, and consists mainly of the quantitative determination of the constituents of milk, butter, fertilizers, grain, etc.

Open only to students who have completed creditably the work of Courses 1, 2, 3 and 4 or 5.

Three exercises per week through the year.

18. Metallurgical Analysis.

This course is arranged for the students of the engineering departments who may elect the same, and consists mainly of the quantitative determination of ores, slags, metals, alloys, fuels, etc.

Open only to students who have completed creditably the work of Courses 1, 2, 3 and 4 or 5.

Three exercises per week through the year.

19. Assaying. *Ten exercises.*

A course in the fire assay of gold and silver ores.

Open only to students who have taken Courses 10 or 18.

20. Thesis.

The work of the last two terms of the Chemical Engineering Course is given up to the special study of some selected subject in any branch of chemical science and the student is required to present a thesis showing him to be capable of independence of thought.

21. Chemical Research.

Especially arranged for students of the Chemical Engineering Course who are in advance of their course.

22. Elementary Applications.

An elementary course arranged for the First Year students in the Two-Year Course in Agriculture with special reference to the elements of plant food, composition of fertilizers, elements subject to exhaustion in soils, etc.

Three exercises per week. S.

DAIRYING.

MR. TINKHAM.

1. Milk and Milk Testing.

Lectures and recitations on the secretion, nature and composition of milk, its uses and value as an article of food. The causes and conditions influencing the quality of milk and the care of milk on the farm. The principles of the various tests and their application on the dairy farm and in the creamery or milk inspector's laboratory. For Agricultural Juniors, and First Year Two-Year Students.

Three exercises per week. F.

2. Dairy Bacteriology.

Lectures, recitations and demonstrations covering the more important facts in the relation of bacteria to dairying. Instruction and practice in pasteurizing milk and cream for market and for butter-making; also in making and using starters, and ripening

cream. For Agricultural Juniors and students in Ten-Week Course in Dairying.

Two exercises per week. W.

3. Dairy Machinery.

Lectures on the construction, operation and care of dairy and creamery appliances. Each student is required to take apart and assemble leading makes of cream separators and to operate them carefully and efficiently, and present a written description of each, with a record of capacity and efficiency under his management. For Agricultural Juniors and Two-Year Students.

Open to those who have completed Course 1.

Three exercises per week. S. and F.

4. Butter-making.

Text-book study, recitations and lectures are supplemented by practice in the creamery. The student is trained to perform all parts of the work and to understand thoroughly the details which make possible the production of fine butter. For Agricultural Seniors.

Open to those who have completed Courses 1 and 3.

Three exercises per week. F.

5. Cheese-making.

A course of lectures will be given covering the details of manufacture, curing and marketing of the more important kinds of cheese. The course will cover work done in European countries as well as that done in Canada and the United States. For Agricultural seniors.

Three exercises per week. W.

6. Creamery and Dairy Management.

Students are taught the method of keeping creamery and dairy accounts and will be required to present sample accounts covering various periods. Plans of dairy buildings, creameries and cheese factories are also required, with estimates for building and equipment. For Agricultural Seniors.

Open to those who have completed Courses 1-4.

Three exercises per week. S.

7. Milk and Milk Testing.

The same as Course 1. For First Year Two-Year Students.

Five exercises per week. S.

8. Practical Work.

For students in Ten-Week Course in Dairying.

Five exercises per week. W.

9. Dairy Machinery.

Lectures on the construction, operation and care of dairy and creamery appliances. For students in the Ten-Week Course in Dairying.

One exercise per week. W.

10. Butter-making.

Text-book study, recitations and lectures. For students in the Ten-Week Course in Dairying.

One exercise per week. W.

DRAWING.*

ASSO. PROF. PUTNAM.

These courses are of an industrial nature and include both free-hand and mathematical branches of this subject.

The work of the first two terms is required of all regular students in four years' courses.

The advanced mathematical and machine drawing is prescribed for engineering courses.

The advanced free-hand drawing is elective and may be taken only by those with adequate preparation.

19. Industrial Drawing.

Free-hand lettering, free-hand drawing, use of instruments, mathematical drawing, inking, tinting, tracing and blue-prints. For all Freshmen.

Two exercises per week. F.

* Do not purchase drawing instruments or materials until you have consulted the instructor as to what is necessary. Students intending to take an engineering course should purchase high grade instruments.

20. Mechanical Drawing.

Systems of object drawing; orthographic projection; isometric drawing; mechanical perspective; shades and shadows. For all Freshmen.

Two and one-half exercises per week. W.

NOTE.—Alternating with shop-work on Wednesdays.

21. Descriptive Geometry.

Recitations and drawing exercises in the solution of geometrical problems by orthographic projection.

For Engineering Freshmen.

Three exercises per week. S.

23. Descriptive Geometry.

Continuation of 21. Practical problems on bridge beams, rafters, piping, etc.

For Engineering Sophomores.

Two exercises per week. F.

24. Elementary Machine Drawing.

For Chemical Sophomores.

Two exercises per week. F.

25. Elementary Machine Drawing.

Mechanism drawing; detail and assembly drawing of simple machines.

For Engineering Sophomores.

Two exercises per week. W.

26. Machine Drawing.

Continuation of 25.

For Engineering Sophomores.

Five exercises per week. S.

27. Machine Drawing.

Working drawings of various machines and machine tools. For Engineering Juniors.

Two exercises per week. F.

28. Elementary Machine Design.

For Engineering Juniors.

Two exercises per week. W.

29. Steam Engine Design.

Engine details and valve-gear problems. For Engineering Juniors.

Two exercises per week. S.

30. Machine Design Drawing.

Completion of 29; the Stephenson link-motion as applied to the locomotive. 30:—The designing of boilers, shaft-couplings, pulleys, etc., having regard to the principles of Applied Mechanics and strength of materials, with complete working drawings in each case. For Mechanical Engineering Seniors who have taken Drawing 29 and Mechanical Engineering 4-6 and 8-11.

Five exercises per week. F.

31. Mill Engineering Drawing.

Figuring for strength of flooring, beams, brick and stone-work in a mill storehouse, with drawing of same. For Mechanical Engineering Seniors.

Four exercises per week. W.

32. Mill Design.

Principles and practice of cotton mill construction. Details and processes of cotton spinning and cotton machinery. The planning and laying out of a complete mill of given spindle capacity, with regard to location and number of machines, transmission and distribution of power, light, fire protection, etc.

Three exercises per week. S.

33. Free-hand Drawing.

Light and shade drawing from casts and still life; charcoal work. Elective for General Course Sophomores.

Two exercises per week. W.

34. Free-hand Drawing.

Pencil sketching from nature and exercises in perspective. Elective for General Course Sophomores.

Two exercises per week. S.

AND THE MECHANIC ARTS.

35. Architectural Drawing.

Studies of architectural detail and historic ornament.

Elective for General Course Juniors.

Three exercises per week. F.

36. Architectural Drawing.

Continuation of 35.

Elective for General Course Juniors.

Two exercises per week. W.

37. Architectural Drawing.

The design of a building, with details of ornament.

Elective for General Course Juniors.

Two exercises per week. S.

38. Architectural Drawing.

Elective for General Course Seniors.

Two exercises per week. F.

39. Architectural Drawing.

Elective for General Course Seniors.

Two exercises per week. W.

40. Architectural Drawing.

Elective for General Course Seniors.

Two exercises per week. S.

NOTE—Courses 38-40 will be given first in 1906-1907, and will correspond to the third year's work in a course of Architecture.

ELECTRICAL ENGINEERING.

PROF. NESBIT, MR. ADAMS.

Course numbers 1 to 40, inclusive, are reserved for subjects taken by Electrical Engineering Students; 41-50 for Mechanical Engineering Students; 51-60, Chemical Engineering Students; and 61-70 for Agricultural and General Course Students.

1. Direct Currents and Direct Current Dynamos.

Engineering Juniors, *three exercises per week.* F. •

This course is taken up upon completion of physics 5 and begins with the study of the magnetic field produced by permanent and electro magnets, the different forms of field magnets, the physical theory of the dynamo and the calculations of the magnetic circuit. The next items are the choice of insulating materials and the copper for the coils, the consideration of armature reactions and the theory of commutation. Upon completion of the text on characteristic curves, a very thorough test is made of an Edison 3 K-W compound dynamo to determine its series—shunt and compound characteristics.

The text-book used in Courses 1 to 3 is S. P. Thompson's *Dynamo Electric Machinery*, Vol. 1, Direct Currents.

2. Direct Current Dynamos and Motors.

Engineering Juniors, *three exercises per week.* W.

The following subjects are taken up this term: The theory of armature winding and construction; mechanical points of design and construction; the various losses; and the design of closed coil types of dynamos.

3. Direct Current Dynamos and Motors.—A continuation of Course 2.

Electrical Engineering Juniors, first term, *three exercises per week for five weeks.* At the completion of this course the time is given to Electrical Engineering 6.

Upon completion of Course 2, a study is made of arc lighting dynamos, machines for special purposes, direct current motors and their design, regulators, controllers and the management of dynamos and motors.

4. Theoretical Electricity.

Electrical Engineering Juniors, *three exercises per week. F.*

This course begins with the study of the fundamental and derived units, the latter of which include the electrostatic, the electromagnetic and practical systems, and their conversion factors. The general theorems of the electrostatic field are developed mathematically, the laws are stated and practical application is made of them in the design of commercial apparatus.

Following this part of the subject, a study is made of magnetism and the magnetic field due to magnets, magnetic shells and circuits traversed by electric currents.

The equivalence of magnetic shells and voltaic circuits is considered with regard to its important application in galvanometers, voltmeters, etc. The theory of measuring instruments of different types is studied in detail.

A large number of examples from Hooper and Wells' "Electrical Problems" are solved as a part of Courses 4 and 5. The text used in these courses is a set of notes based upon the work of Maxwell, Mascart et Joubert, Gray, J. J. Thomson, Gerard, Entage, Nipher, Foster, Jackson and others.

5. Theoretical Electricity.

Electrical Engineering Juniors, *three exercises per week. W.*

This is a continuation of Course 4. The laws of series and parallel circuits, the laboratory methods of measuring the various electrical quantities, such as electromotive forces, resistances, capacities, permeability of iron, etc., the methods of standardizing instruments, the laws of electrolysis, etc., constitute the subjects taken up in Courses 4 and 5.

6. Theoretical Electricity Alternating Currents.

Electrical Engineering Juniors, *three exercises per week first five weeks; six exercises per week last five weeks. S.*

This course begins with the study of the properties of periodic curves, the average and virtual values of the ordinates of sine curves, followed by the development of general expressions for the instantaneous electromotive force impressed upon, and the energy spent in a series circuit, containing resistance R , self-induction L and capacity S , in terms of their components.

The phase relations of these component quantities are studied by plotting curves for a typical circuit of assumed data.

D. C. and J. P. Jackson's "Alternating Currents and Alternating Current Machinery" is the text upon which Courses 6,

7, 8 and 9 are based. Reference is also made to other standard works.

7. Theoretical Electricity.—“Alternating Currents and Alternating Current Machinery.”

Electrical Engineering Seniors, *five exercises per week.* F.

Considerable time is spent in getting a correct knowledge of typical series and parallel circuits containing inductive and condenser reactances.

The solution of problems by the analytical and graphical methods, the methods of measuring inductances, power, etc., the magnetic circuit of alternators, the regulation efficiencies and losses of machines of different types receive due attention.

8. Theoretical Electricity.—“Alternating Currents and Alternating Current Machinery.”

Electrical Engineering Seniors, *six exercises per week.* W.

A detailed study of the transformer is made and formulæ of design are developed, which enable its operation to be predicted under various conditions. Jackson's text is used, in addition to notes from Bedell's and Fleming's works on the transformer.

This is followed by the study of Polyphase Electric Currents and Machinery, in which S. P. Thompson's book is used in class, along with that portion of Jackson's work on the same subject.

9. Alternating Current Phenomena.

Electrical Engineering Seniors, *three exercises per week.* W.

Steinmetz's text is used in class.

10. Alternating Current Phenomena.

Electrical Engineering Seniors, *three exercises per week first five weeks.* S.

20. The Telephone.

Three exercises per week for six weeks. F.

A course of lectures and recitations on the acoustic and electrical principles of telephony, the different forms of calling and receiving apparatus and accessories, and simple circuits constitute the introduction to the course. This is followed by a consideration of the more complex forms of circuits, exchange switchboards, transfer systems and the construction of overhead and underground systems.

Kempster B. Miller's "American Telephone Practice" is used as a text.

21. The Telegraph.

Three exercises per week for six weeks. F.

The work of this course consists of a careful study of the elementary electrical principles of telegraphy, the construction and connection of lines, repeaters, high speed telegraphy, simple and multiplex telegraphy, submarine signalling, automatic devices, general electric signalling for purposes of alarms, railroads, etc., and wireless telegraphy.

The text used is Maver's "American Telegraphy."

22. Storage Batteries.

Three exercises per week the last three weeks. F.

This is a course of lectures, discussing the different types of cells, charging, discharging, their care and management, their commercial application for keeping the voltage constant at feeding centers, etc., and as sources of constant potential for laboratories.

Notes and references are used by the class.

23. Electric Lighting.

Three exercises per week for the first six weeks. W.

This course covers such subjects as general electrical distributions for series and parallel systems, the development of wiring formulæ, the calculation of size of feeders and mains, the regulation of feeder voltages, two and three wire systems, overhead and underground conductors, a detailed study of the arc and incandescent lamps, alternating current systems of distribution by transformers, etc.

Crocker's "Electric Lighting," Vol. II, is used as a text.

24. Power Distribution for Electric Railroads.

Three exercises per week for the last four weeks. W.

The chief items considered are the location of the power station as determined by economical questions, the fluctuations of load and their nature and magnitude, feeding and return systems, boosters, substations, fast and heavy railway service, alternating current motors for railroads, car equipment, controllers, safety devices, line and track construction, operation and maintenance.

In connection with this course several exercises are devoted to electricity in mining.

The text used is Bell's "Power Distribution for Electric Railroads."

25. High Tension Power Transmission.

Three exercises per week for the last five weeks. S.

The text-book used is "High Tension Power Transmission," a set of papers compiled by the American Institute of Electrical Engineers, and published by the McGraw Co., N. Y. city.

31. Electrical Laboratory.

Two exercises per week. F.

Courses 15, 16 and 17 are consecutive and consist in the measurement of resistances, inductances, the calibration of a ballistic galvanometer and Ryan electrometer, the permeabilities of samples of iron. Tests are made on a small dynamo, connected to run as a direct current series, a shunt, or a compound motor to determine the speed, torque, current, output and efficiency curves of motors. The determination of the candle power of incandescent and arc lamps, the calibration of resistances, the measurement of power in alternating current circuits, alternator characteristics, the running of synchronous motors, the load curves of a transformer, power measurement by a wattmeter and the study of polyphase machinery constitute the remainder of the course.

The laboratory manuals, upon which Courses 15, 16 and 17 are based, are Parr's "Electrical Testing in Physics and Electrical Engineering," Nichols' "Laboratory Manual in Physics and Applied Electricity," and Swenson and Frankenfield's "Testing of Electro Magnetic Machinery."

32. Electrical Laboratory.

Two exercises per week. W.

33. Electrical Laboratory.

Two exercises per week. S.

34. Thesis.

Three exercises per week. S.

A deposit of fifteen dollars is made by each student electing Thesis, and where apparatus is constructed as a part of a thesis, it shall remain the property of the department.

41. The Elements of Electrical Engineering.

Courses 41 to 50 inclusive are for Mechanical Engineering Students.

Mechanical Engineering Juniors, *three exercises per week F.*

Franklin and Estey's text, "The Elements of Electrical Engineering," is used in Courses 41 to 42. These courses are similar, though briefer than 1 and 2.

42. The Elements of Electrical Engineering; a continuation of 41.

Three exercises per week. W.

43. Alternating Currents.

Three exercises per week. S.

This is a brief course taken by Juniors of the Mechanical Engineering Course upon completion of Courses 41 and 42. The text-book used is Franklin and Williamson's "Alternating Currents."

44. Alternating Currents.

Three exercises per week for the first eight weeks. F.

This is a continuation of Course 19 and is taken by Seniors of the Mechanical Engineering Course.

45. Applications of Electricity.

Three exercises per week for the last seven weeks. F.

This is a course of lectures on the telephone, telegraph, storage batteries, electric lighting and electric railroads, and power transmission, and is given to Seniors of the Mechanical Engineering Course upon completion of Courses 43 and 44. The subjects taken up in this course are more briefly treated than in Courses 20 to 24, inclusive.

51. Industrial Electricity.

Courses 51 and 52 are taken by Technical Chemistry Seniors.

Three exercises per week. F.

The principles and methods employed in electrical measurements, such as resistance of wires and batteries e. m. f. of cells, current measurement by ammeters and electrolysis, the use of the voltmeter, etc., will be carefully considered. A brief study will be made of the dynamo, motor, transformer, primary and

secondary batteries, arc and incandescent lamps and the general principles of electrical distribution.

52. Industrial Electricity.

Three exercises per week. W.

This is a continuation of Course 22. Slingo and Brooker's "Electrical Engineering" is used as a text-book in Courses 22 and 23.

61. Industrial Electricity.

Course 61 is elective for Agricultural and General Course Seniors.

Three exercises per week. F.

This course is elective for Seniors of the Agricultural and General Courses. In an elementary way, study is made of such subjects as the dynamo, motor, transformer, telephone, telegraph, storage batteries, incandescent and arc lighting, and electric railroads.

ENGLISH.

ASST. PROF. HARRISON.

*1. Rhetoric and Composition.

Two exercises per week. F.

*2. Rhetoric and Composition.

Two exercises per week. W.

*3. Rhetoric and Composition.

Two exercises per week. S.

4. English Literature.

Chaucer to Wordsworth. Lectures and readings. Special attention will be given to the theory of the drama. Open to Juniors.

Two exercises per week. W.

* Courses 1, 2 and 3, required of all Freshmen, are continuous and dependent, 2 being open to all who have passed 1, and 3 to all who have passed 2.

Theme writing, book reviews, the theory of composition and an introduction to the principles of literary criticism.

5. Wordsworth to Browning.

Text-book, lectures and readings. Special attention will be given to the work of Tennyson and Browning. Open to General and Agricultural Juniors and Chemical Seniors.

Two exercises per week. S.

7. Course in Debating.

This is intended to give the student a knowledge of the principles of argumentation and to accustom him to speaking in public.

One exercise per week. W. or S.

8. American Literature.

For Agricultural and General Seniors.

Three exercises per week. W.

9. American Literature.

A continuation of 8.

Three exercises per week. S.

10. Grammar and Elementary Composition.

For First Year Short Course Students.

Three exercises per week. F.

FORESTRY.

PROF. HALL.

MR. J. K. SHAW.

1. Arboriculture and Forestry.

This course is intended to give the student a knowledge of the various methods of forestry management in Europe and America. The text and lectures will cover the use of trees for shelter, shade and ornament, and their propagation; value of trees for timber; how to improve existing woodlands; influence of forests upon soils, crops and climate; establishment and management of plantations and forest trees.

For Agricultural Juniors and Second Year Two-Year Students.

Three exercises per week. W.

2. Forest Technology.

This course aims to give the student advanced theoretical and practical work in establishing, improving and managing woodlands; estimating and measuring standing timber and harvesting forest products. The physical properties of woods and forest botany and entomology are here further considered. Seminary and laboratory work.

Elective for those students showing special ability in Course 1.

Three exercises per week. F.

3. Forest Economics.

This course is special and offered only to students who have shown marked proficiency in Forestry 1 and 2. Climatic influences; soil and crop production; forest administration, forest laws and forest policies; forest distribution; and forest utilization.

Elective for those having had Course 2.

Three exercises per week. S.

FRENCH.

ASSO. PROF. WHORISKEY.

Courses 1, 2 and 3 are taken in Freshman year by students who offer German for admission.

1. Essentials of French Grammar and reading with practice in speaking and writing French. Dictation.

Three exercises per week. F.

2. Grammar continued. Simple stories, committing of poems to memory. Dictation.

Three exercises per week. W.

3. Reading of Modern French Prose, translation from English into French of connected narrative. Dictation.

Three exercises per week. S.

4. Reading and translation of Scientific French, Composition, Poems.

Three exercises per week. F.

5. Reading, Translation and Composition continued.

Three exercises per week. W.

6. French Prose, History and Travel; Composition based on some book read in class.

Three exercises per week. S.

7. French Prose, Sight Reading.

Hugo, Balzac, Sand.

Three exercises per week. F.

8. Classical French.

Corneille, Racine and Moliere.

Three exercises per week. W.

9. General Review of French Literature. Outside reading; sight work.

Three exercises per week. S.

Courses 10, 11 and 12 are to be given in 1907-1908 and then in alternate years with 7, 8 and 9. Announcement will be made later with regard to the authors to be studied.

GEOLOGY.

1. Mineralogy.—Prof. Parsons.

A short course in blowpipe analysis, followed by laboratory practice in the determination and study of minerals, with special reference to their economic value. For Chemical Sophomores and Engineering, General and Agricultural Juniors.

Course 1 is open only to those who have taken Chemistry 1 and 2.

Three exercises per week. S.

2. Elementary Geology.—Prof. Sanderson.

A brief course in the elements of Geology. Special attention is given to local geology and excursions are made to various points of interest in the vicinity. For Agricultural and General Seniors.

Open to those who have completed Zoology 5 and Geology 1.

Four exercises per week. F.

GERMAN.

ASSO. PROF. WHORISKEY.

Courses 1, 2 and 3 are taken in Freshman year by students who offer French for admission. Courses 4, 5 and 6 are taken by all Sophomores.

1. German Grammar. Declension of articles, nouns, adjectives and pronouns; verbs, weak and strong. Reading of simple stories; conversation. Dictation.

Three exercises per week. F.

2. Verbs, modal auxiliaries, essentials of syntax. Composition, Reading and Translation; Poems. Dictation.

Three exercises per week. W.

3. Reading, Translation and Composition; Sight Translation. Dictation.

Three exercises per week. S.

4. German Prose of the Nineteenth Century. Composition based on some book read in class.

Three exercises per week. F.

5. German Prose of the Nineteenth Century continued. Composition, outside reading.

Three exercises per week. W.

6. Scientific German. Composition.

Three exercises per week. S.

*7. Goethe, His Life and Works.

Three exercises per week. F.

*8. Goethe (continued).

Three exercises per week. W.

*9. Goethe (continued).

Three exercises per week. S.

10, 11 and 12. Schiller, His Life and Works. Given in 1906 and 1907.

The aim throughout the courses in French and German is to train the students to make practical use of these languages. Considerable stress is laid, therefore, on reading aloud, dictation and paraphrasing the assigned texts.

HISTORY.

PROF. SCOTT.

In the courses in History an important place is given to historical reading carried on in the reference room. In some cases a considerable part of the work is written.

Courses 1 to 3 and Courses 4 to 6 are given on alternate years, Courses 4 to 6 offered in 1905-'06.

Courses 1 to 6 are open only to those who have passed in Grecian and Roman History.

Courses 7 to 10 are open only to those who have passed in History and Constitution of the United States.

1. History of Europe from 814 to 1492. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. F.

2. History of Europe from 1492 to 1598. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three exercises per week. W.

3. History of Europe from 1598 to 1715. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. S.

4. History of Europe from 1715 to 1789. Europe at the beginning of the French Revolution. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. F.

5. History of Europe from 1789 to 1815. The French Revolution. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three exercises per week. W.

6. History of Europe since 1815. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. S.

7. American History to close of Colonial Period.

For General Course Juniors and Agricultural Seniors.

Four exercises per week. F.

8. Political and Constitutional History of the United States from 1738 to 1820.

For General Course Juniors and Agricultural Seniors.

Three exercises per week. W.

9. Political and Constitutional History of the United States, 1820 to 1846.

For General Course Juniors and Agricultural Seniors.

Two exercises per week. S.

10. Political and Constitutional History of the United States since 1846.

For General Course Seniors.

Three exercises per week. F.

HORTICULTURE.

PROF. HALL.

MR. J. K. SHAW.

With the rapid development of agricultural education, the science of horticulture has become more clearly defined. Horticulture is sub-divided into four classes, viz.: (1) Pomology, or fruit growing; (2) Olericulture, or vegetable gardening; (3) Floriculture, or flower growing; and (4) Landscape Gardening.

1. Principles of Horticulture.

This course is elementary, and comprises the fundamentals of horticulture, emphasizing the sciences upon which horticulture rests and the scope and importance of its field.

For Agricultural Freshmen.

Two exercises per week. S.

2. Olericulture.

Lectures and recitations upon the culture, classification and identification of vegetables. The storing and marketing of vegetables is also considered. This course is given as a laboratory course of fifteen exercises in the fall term for the study and identification of varieties and in the spring term twenty exercises are given to complete the course.

For Agricultural Sophomores and Second Year Two-Year Students.

Open only to those who have completed Botany 3 and are taking Botany 4.

3. Greenhouse Management.

Lectures, recitations and laboratory work. This course aims to familiarize the student with modern methods of greenhouse work and the more important plants grown under glass. Soils, varieties, culture, marketing, enemies, etc., are studied. Each student is required to do practical work in propagating, potting, watering, ventilating, etc. A study of the history and development of different types of greenhouses, including methods of heating and general management.

For Agricultural Sophomores and First Year Two-Year Students.

Three exercises per week. W.

4. Pomology and Viticulture.

The culture, classification and identification of our leading commercial fruits are taken up for study in this course, the object being to familiarize the student with modern fruit growing, both the large or orchard fruits and the small or berry fruits. Lectures, recitations and laboratory work.

For Agricultural Juniors and Second Year Two-Year Students.

Open only to those having completed Botany 1 and Zoology 3.

Three exercises per week. F.

5. Floriculture and Home Decoration.

Lectures, recitations and laboratory work. The culture and uses of ornamental plants are studied together with their history, classification, characteristics, propagation and uses on private and public grounds.

For Agricultural Juniors and Second Year Two-Year Students.

Open only to those who have completed Horticulture 3.

Three exercises per week. S.

6. Plant Breeding.

This course takes up the evolutionary study of plant life and points out through examples, largely of economic horticultural plants, their modification and improvement by mutation, crossing, dwarfing, forcing, etc. Recitations and seminary work.

For Agricultural Seniors. Elective for Two-Year Students.

Three exercises per week. W.

7. Landscape Gardening.

Lectures, recitations and laboratory work on the principles of æsthetics as applied to natural scenery; designing, mapping, staking out and planting private and public grounds, parks, cemeteries, etc., are studied and practised.

Courses Horticulture 3 and 5 must precede this course.

Three exercises per week. S.

8. Horticultural Seminary.

This course consists of the study of current horticultural literature and various advanced horticultural problems.

Preceded by Courses 6 and 7.

Two exercises per week. S.

9. Advanced Horticulture.

This course consists of special advanced work arranged to suit the needs of individual students. Open to those having completed the first five courses in Horticulture.

Three exercises per week. F.

MATHEMATICS.

PROF. PETTEE.

1. Algebra completed.

For all Freshmen.

Five exercises per week. F.

2. Solid Geometry, with advanced course.

For Freshmen entering without the subject.

Two exercises per week. F.

3. Plane and Spherical Trigonometry.

For all Freshmen.

Four exercises per week. W.

4. Surveying.

Recitations, field-work and plotting, including compass, transit, plane-table and level work. Required of Engineering, Chemical and Agricultural Freshmen. Elective for General Course Freshmen.

Three exercises per week. S.

5. Analytical Geometry.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores.

Five exercises per week. F.

6. Differential Calculus.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores.

Five exercises per week. W.

7. Integral Calculus.

For Engineering and Chemical Sophomores.

Five exercises per week. S.

8. Differential Equations.

For General Juniors.

Two exercises per week. F.

9. Quaternions.

For General Juniors.

Two exercises per week. W.

10. Astronomy.

For General Juniors.

Four exercises per week. W.

11. Roads, Streets and Pavements.

Recitations and lectures on construction and maintenance of paved, macadamized and gravel roads, with discussion of laws relating thereto. For Agricultural Seniors.

Three exercises per week. S.

12.

For First Year Two-Year Students.

Two exercises per week. F.

13. Continuation of 12.

Three exercises per week. W.

METEOROLOGY.

1. Meteorology.—Prof. Pettee.

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes and methods of prediction of atmospheric changes. For Agricultural and General Seniors.

Three exercises per week. S.

MECHANICAL ENGINEERING.

PROF. READ, ASST. PROF. HANCOCK.

1. Mechanism.

Recitations and exercises in drawing outlines of elementary combinations of parts of machines, with special reference to the relative motion of the parts, their forms and modes of connection. For Engineering Freshmen.

Open only to those who have taken Mathematics 1-24, Drawing 19-20.

Three exercises per week. S.

2. Mechanism.

For Engineering Sophomores.

Continuation of 1.

Two exercises per week. F.

3. Mechanism.

Continuation of 1 and 2.

Two exercises per week. W.

4. Mechanics of Engineering.

Courses 4, 5 and 6 are devoted to recitations in statics and dynamics. For Engineering and Chemical Juniors.

Courses 4 to 6 are open only to those who have taken Mathematics 1 to 7, inclusive, and Physics 1.

Two exercises per week. F.

5. Mechanics of Engineering.

Continuation of 4.

Four exercises per week. W.

6. Mechanics of Engineering.

Continuation of 4 and 5.

Four exercises per week. S.

7. Graphic Statics.

For Engineering and Chemical Juniors.

Two exercises per week. F.

8. Steam Engineering.

Recitations and lectures on thermodynamics, boilers and valve gears. For Engineering Juniors.

Four exercises per week. F.

Course 8 is open only to those who have taken Mathematics 1-7, Physics 1 and 2, Drawing 19-21.

9. Steam Engineering.

Continuation of Course 8.

Three exercises per week. W.

10. Steam Engineering.

Continuation of Courses 8 and 9.

Four exercises per week. S.

11. Materials of Construction.

Recitations on the production, properties, uses and preservation of engineering materials. For Engineering Seniors.

Continuation of Courses 4-6.

Four exercises per week. F.

Course 11 is open only to those who have taken Courses 4, 5, 6 and 7.

12. Hydraulics.

For Engineering Seniors.

Open only to those who have taken Courses 4 to 6.

Three exercises per week. F.

14. Mechanical Laboratory.

Tests of materials, boilers, engines, pumps, indicators, etc. For Engineering Seniors.

Course 14 is open only to those who have taken Courses 1 to 10 and must have taken or are taking 11 and 12.

Two exercises per week. F.

15. Mechanical Laboratory.

Continuation of Course 14.

Three exercises per week. W.

16. Mechanical Laboratory.

Continuation of Courses 14 and 15.

Two exercises per week. S.

17. Multiple Expansion Engines.

For Engineering Seniors.

Open only to those who have taken 4-6, 8-10 and 14.

Three exercises per week. W.

18. Gas and Hot Air Engines and Refrigerating Machinery.

For Engineering Seniors.

Open only to those who have taken 4-6, 8-10, 14, 15 and 17.

Three exercises per week. S.

19. Machine Design.

For Mechanical Engineering Seniors.

The design of boilers, boiler setting details, shafting, couplings and pulleys, with regard to the principles of Applied Mechanics and strength of materials. Given as Machine Design Drawing. See Drawing 30.

Course 19 is open only to those who have taken Courses 4-6 and 8-11, and Drawing 29.

20. Contracts and Specifications.

Recitations and lectures on the laws and forms of engineering contracts and specifications. Students in this course are required to draw up specifications, write a contract and make estimates on a piece of engineering work.

For Mechanical Engineering Seniors.

Three exercises per week. W.

21. Mill Design.

Given as Drawing 32.

Three exercises per week. S.

22. Elementary Steam Engineering.

For Engineering Sophomores.

Two exercises per week. S.

23. Hydraulic Motors.

For Mechanical Engineering Seniors.

Principles of design and operation of water power plants.

Course 23 is open only to those who have taken Course 12.

One and one-half exercises per week. W.

24. Concrete-Steel Construction.

For Mechanical Engineering Seniors.

A study, from the current engineering papers, of the more recent developments in the design and construction of concrete-steel foundations, dams and buildings.

Course 24 is open only to those who have taken Course 11.

One and one-half exercises per week. W.

Course 23 is given the first five weeks and course 24 the last five weeks.

MILITARY SCIENCE AND TACTICS.

LIEUT. HUNT.

Each male student, unless a member of the Senior class, or physically unfit, is required to drill and attend recitations in military science.

COURSE OF INSTRUCTION.

1. Military Drill.

Infantry drill regulations through the school of the battalion in close and extended order.

Advance and rear guards.

Outposts.

Marches.

Ceremonies; battalion review, parades and guard mounting.

Calisthenics and gymnastics.

Rifle practice.

First aid to the injured.

Signalling.

Two exercises per week.

2. Military Science.

Infantry Drill Regulations covered by practical instruction; Manual of Guard Duty; Small Arms Firing Regulations; Articles of War; enlistment and discharge papers; morning reports; field returns; muster rolls; rosters; ration returns; requisitions; prop-

erty returns, etc., with lectures on military subjects, notes upon which are to be taken for subsequent examination.

One exercise per week.

3. Army Organization and Administration.

Lectures and preparation of military papers.

Elective for Seniors only.

One exercise per week.

PHILOSOPHY.

ASST. PROF. HARRISON.

1. The History of Educational Theory.

The greater part of the course is taken up with the study of the modern educational reformers: Comenius, Rousseau, Pestalozzi, Froebel, Spencer and Herbart.

Open to Sophomores.

Two exercises per week. W.

3. Psychology.

An introduction to the study of the mental life. The practical needs of the student are related as closely as possible to the work of the course.

Open to Juniors and Seniors.

Three exercises per week. F.

4. Philosophy of Education.

The meaning of education is defined from the aspect of the biological, the physiological, the social, the psychological and the philosophical. Horne's "Philosophy of Education."

Open to Juniors and Seniors.

Three exercises per week. W.

5. Logic.

A study of the methods, fallacies and aims of human thinking. A preparation for work in science and in philosophy.

Open to Sophomores.

Two exercises per week. S.

7, 8 and 9. Advanced Pedagogy.

A one-hour course throughout the year. Some important work on the practice of education is made the basis for study. Free discussion of the teacher's problems is made a part of the class exercises. Practice work for the students who wish it is found in the public schools at and near Durham. Extra credit is given for the practice teaching. The permission of the instructor is required before electing this course.

10. Herbartian Psychology.

This course attempts to make a thorough study of the system of Herbart and to relate his contributions to the problems of present-day teaching.

Open to Juniors and Seniors who have passed Course 3.

Three exercises per week. S.

11. Advanced Psychology.

This course is a natural continuation of Course 3. The emotional and volitional aspects of the mind are studied more carefully than is possible in the elementary course.

Open to all students who have passed Course 3.

Three exercises per week. F.

PHYSICS.

PROF. NESBIT, MR. ADAMS.

Courses 1 to 8 are taken consecutively by students of the Electrical and Mechanical Engineering Courses. Students in the Chemical Engineering Course take Courses 1 to 5, 7

and 8. Students in the course in Agriculture take Courses 1 to 4, and such part of Course 5 as may be given in the Winter term. They may also elect in the Senior year, Electrical Engineering 61, as a continuation of Physics 5. Students in the General Course are required to take either Course 1 or 21, and they may elect either Courses 21 to 25 or 1 to 5.

Course numbers 1 to 20, inclusive, are reserved for the subjects taken by Engineering students; 21 to 30, inclusive, for the General Course; 31 to 40 for the Agricultural Course Two-Year Students.

1. Mechanics.

Freshmen, three exercises per week. S.

The principles and laws of general physics are illustrated by a number of experiments, and the student is taught to make ready application of his mathematics in the solution of problems.

It is intended to provide a foundation in the dynamics of solids, liquids and gases, and also in the subjects of statics and hydrostatics.

Instruction is given by lectures, recitations and problem work. The text used is Ganot's Physics. Reference is made to Ames' Theory of Physics, Watson's Physics and other standard treatises.

The Electrical and Mechanical Students take up the use of the Slide Rule in connection with this course. Slide Rules should not be bought except upon advice of the instructor.

2. Heat.

Sophomores, three exercises a week for first eight weeks. F.

The theories of heat are briefly discussed. The subdivisions of the subject, such as the nature of heat, its effects, thermometry, sources of heat, the transference and transformations of heat are considered in detail. Constant attention is given to the relation of these topics to the subject of thermo-dynamics. Ganot's Physics is used as a text.

3. Light.

Sophomores, three exercises a week for the last seven weeks. F.

The subject is approached from the geometrical and physical standpoint. A number of experiments are performed, illustra-

tive of wave motion in general, followed by a study of that form of wave motion upon which the modern theory is based.

The subject is developed progressively and due attention is given to such subjects as reflection, refraction, color, the spectrum, and interference and polarization phenomena.

The student makes a careful study of optical instruments of all classes. Ganot's Physics is used as the text.

4. Sound.

Sophomores, three exercises per week for the first five weeks. W.

The course consists of lectures and recitations, considerable emphasis being laid upon the relation of the subject to the transmission of speech.

The text used is Stone's Elementary Lessons in Sound.

5. Electricity and Magnetism.

Sophomores, three exercises per week for the last five weeks of the second term and all of the third term. W. and S.

Numerous experiments are performed to illustrate the various phenomena of electrostatics, magnetism, current electricity and electric waves. As the course advances, the attention of the student is constantly called to the applications of electricity to the arts and sciences. S. P. Thompson's "Elementary Lessons in Electricity and Magnetism" is used as a text. This course is required as a preparation for Electrical Engineering 1 to 4 and 22 to 23.

6. Elements of least Squares and the Precision of Measurements.

Juniors, three exercises per week. F.

This course is intended to serve as an introduction to the subject of Physical Measurements. It familiarizes the student with the precautions necessary in taking experimental data and of properly using his data in order to secure the most reliable results.

A large number of problems are solved, illustrating the determination of physical constants and in deducing the constants of empirical equations.

7. Physical Laboratory.

Juniors, three exercises per week. W.

The apparatus employed in the experimental part of Courses 7 and 8 is adapted to no special laboratory manual, and either notes are prepared for students' use or reference is made to the works of Ames and Bliss, E. L. Nichols, H. M. Godwin and others.

The laws of general physics are investigated experimentally. The student is encouraged to acquire skill in the manipulation of apparatus, habits of clearness and neatness in keeping records, as well as enthusiasm for independent and original investigation.

A careful study is made of the Analytical Balance, time measuring devices, heat measurements, the microscope, spectroscope, lens combinations, photometry, the laws of vibrating strings and the simple electrical measurements.

A laboratory fee of five dollars per term is required in Courses 7 and 8 to cover breakages, etc. Any unexpended balance is refunded to the student at the close of the college year.

8. Physical Laboratory.

Juniors, three exercises per week. S.

This is a continuation of Course 7 and is largely devoted to the calibration of galvanometers, ammeters, the determination of the constants of instruments, the measurement of voltages, resistances, etc.

On the completion of Courses 7 and 8, an examination is given to test the student's knowledge of physical research, both in attacking a given problem and in thinking and acting for himself.

Physics 21 to 25 are given to students who do not intend to pursue mathematics beyond the subject of Trigonometry. Their completion does not prepare the student to enter Courses 7 and 8.

21. Mechanics.

General Course Freshmen, three exercises per week. S.

This is a briefer course than Physics 1 and aims to meet the needs of the student wishing to obtain some knowledge of physical phenomena and its laws.

22. Heat.

Elective for General Course Sophomores, three exercises per week for six weeks. F.

23. Light.

Elective for General Course Sophomores, three exercises per week for five weeks. F.

24. Sound.

Elective for General Course Sophomores, three exercises per week for the last four weeks. F.

25. Electricity and Magnetism.

Elective for General Course Sophomores, three exercises per week throughout the term. W.

Physics 41 and 42 are intended to acquaint the student with the fundamental principles and facts of physics.

41. Elementary Physics.

First year Two-Year course in Agriculture, *three exercises per week. S.*

42. Elementary Physics.

Second year Two-Year course in Agriculture, *three exercises per week. F.*

This is the completion of the work begun under Course 41.

POLITICAL SCIENCE.

PROF. SCOTT.

1. Political Economy.

An elementary course, with lectures upon some of the practical questions of the day.

For Agricultural and General Sophomores and Engineering and Chemical Seniors.

Five exercises per week. S.

2. Laws of Business.

Recitations supplemented by lectures and the discussion of cases.

Two credit hours.

Courses 2 and 3 are given consecutively in the Fall term.

Five exercises per week.

For Agricultural and General Seniors.

3. American Constitutional Law.

Use is made of Pomeroy's Constitutional Law, which is supplemented by the decisions of the United States Supreme Court. Special attention is given to the connections between American constitutions and American political history.

Three credit hours.

4. Money and Banking.

Recitations, readings and lectures.

For Agricultural Seniors and General Juniors and Seniors.

Courses 4 and 6 are given in alternate years. Course 4 will be offered in the year 1906-'07.

Open only to those who have taken Course 1.

Three exercises per week. W.

5. Socialism and Social Reform.

Readings, recitations and lectures.

For Agricultural Seniors and General Juniors and Seniors.

Courses 5 and 7 are given in alternate years. Course 5 will be offered in the year 1906-'07.

Open only to those who have taken Course 1.

Three exercises per week. S.

6. International Law.

For Agricultural Seniors and General Juniors and Seniors.

Courses 4 and 6 are given in alternate years.

Three exercises per week. S.

7. Public Finance.

For Agricultural Seniors and General Juniors and Seniors.
Courses 5 and 7 are given in alternate years.

Open only to those who have taken Course 1.

Three exercises per week. W.

SHOP WORK.

ASST. PROF. HANCOCK, MR. BROWN.

Three hours' work in the shop is reckoned as one exercise.

1. Wood Work.

Exercises in carpentry work, joinery and pattern making. For all male Freshmen.

Two exercises per week. F.

2. Pattern Making and Foundry.

A continuation of 1

For Chemical and Engineering Freshmen.

Two and one-half exercises per week. W.

NOTE.—Alternate with Drawing on Wednesdays.

3. Pattern Making and Foundry.

For Chemical and Engineering Freshmen.

Two exercises per week. S.

4. A course in Forging, giving the student exercises in Upsetting, Drawing, Forming and Welding.

For Mechanical and Electrical Engineering Sophomores.

Two exercises per week. F.

5. A course in Turning, Facing, Thread Cutting, Milling, Shaping, Scraping, Filing and Planing.

For Chemical Seniors and Engineering Sophomores.

Two exercises per week. W.

6-11. A Course in Machine Shop Tools and Methods.

For Mechanical Engineering Juniors and Seniors.

Considerable time is given to tool room work in the making of fine tools, such as arbors and gauges; grinding both external and internal; tempering; the use of the electric pyrometer in connection with tempering and annealing; the use of the milling machine in connection with spiral and gear cutting; bench work in fine fitting; experimental work as to different cutting speeds and angles for various forms of tools as well as with different grades of tool steel, including high speed steel. Metallography of the heat treatment of steel.

A portion of the time is taken up in the reading and discussion of the various engineering periodicals and excursions are made to large shops so that the student has an opportunity to see the above processes in practical operation.

6. For Mechanical Engineering Juniors.

Shop work.

Two exercises per week. F.

7. For Mechanical Engineering Juniors.

Shop work.

Two exercises per week. W.

8. For Mechanical Engineering Juniors.

Shop work.

Two exercises per week. S.

9. For Mechanical Engineering Seniors.

Shop work.

Two exercises per week. F.

10. For Mechanical Engineering Seniors.

Shop work.

Two exercises per week. W.

11. For Mechanical Engineering Seniors.

Shop work.

Two exercises per week. S.

12. Wood Work.

For First Year Two-Year Students.

Two exercises per week. W.

13. Iron Work.

For Second Year Two-Year Students.

Two exercises per week. S.

14. Special Shop Work.

Work arranged to suit the needs of particular students.

From one to four exercises per week. F.

15. Special Shop Work.

From one to four exercises per week. W.

16. Special Shop Work.

From one to four exercises per week. S.

17. Forging.

For Agricultural and General Course Freshmen.

Two and one-half exercises per week. W.

SPANISH.

ASSO. PROF. WHORISKEY.

Spanish 1, 2 and 3.

Essentials of Spanish Grammar. Translation of modern Spanish prose. Stories and plays by modern authors will be read.

Three exercises per week. F., W., S.

Elective for General Course Students in Sophomore, Junior or Senior year.

ZOOLOGY.

PROF. SANDERSON, DR. HEADLEE.

The courses in Zoölogy are arranged in sequence for those studying Agriculture or Economic Entomology, and for those desiring a more general course fitting them for teaching or for medical studies, though any courses offered may be taken by those who have completed previous courses necessary. See Biological Division, Agricultural Course, page 37.

1. Invertebrate Zoölogy.

The structure and life of the invertebrate animals, except insects. Lectures and laboratory dissections of typical forms. For Agricultural and General Sophomores.

Three exercises per week. F.

3. Economic Entomology.

Insects affecting crops, domestic animals, etc., their life, histories, habits and methods of combating them. Special consideration of general farm methods for control of insects affecting staple crops and of spraying, machinery and insecticides for combating truck and fruit insects. For Agricultural and General Sophomores completing Course 2.

Four exercises per week. S.

4. General Entomology.

A general survey of the structure, habits and classification of the different orders of insects. Lectures, laboratory dissections and classification. For Agricultural and General Sophomores completing Course 1.

Three exercises per week. W.

5. Vertebrate Anatomy and Physiology.

The comparison of anatomy and physiology of vertebrate animals, general physiology of higher animals, and laboratory dissections of a few typical forms. For Agricultural and General Juniors completing Courses 1 and 2.

Four exercises per week. F.

6. Principles of Zoölogy.

The history, fundamental principles, problems and philosophy of Zoölogy. Lectures. For Agricultural and General Juniors or Seniors having completed previous courses. Given in alternate year with Course 17.

Three exercises per week. W.

7. Comparative Zoölogy.

Lectures and reading upon the comparative anatomy and physiology of animals. For Agricultural and General Juniors and Seniors having completed previous courses. Alternates with Course 6.

Three exercises per week. W.

8. Economic Ornithology.

A study of the relation of birds to Agriculture, to each other and other organisms. For Agricultural and General Juniors or Seniors. Alternate with Course 9.

Three exercises per week. S.

9. Advanced Economic Entomology.

The methods of study and general principles of combating insect pests; the literature and history of economic entomology; practice in determining and rearing and combating insect pests.

For Agricultural Juniors or Seniors having completed Course 3. Alternate with Course 7.

Three exercises per week. S.

10. Advanced Entomology.

Advanced work in General Entomology; collecting, classification and anatomical studies. For General or Agricultural Juniors having completed Course 2.

Three exercises per week. S.

11, 12 and 13. Advanced Zoölogy.

Averaging four exercises per week for the year. For students who elect Zoölogy for Senior year to be arranged to suit individual needs. Open to those who have completed five previous courses and have shown proficiency in Zoölogy.

14. Elementary Zoölogy.

The structure and habits of the invertebrate and lower vertebrate animals, with special study of insects. Recitations and laboratory dissections of typical forms. For First Year Two-Year Students.

Five exercises per week first five weeks and three exercises per week balance of term. F.

15. Vertebrate Anatomy and Physiology.

The anatomy and physiology of the higher vertebrates based upon that of man and with special reference to domestic animals. Recitations and laboratory dissections and experiments. For First Year Two-Year Students completing Course 1.

Five exercises per week. W.

16. Biological Seminar.

Reports and discussions upon current literature of Zoölogy and Botany, special topics and observations. For Agricultural and General Juniors and Seniors.

One hour per week through the year.

COURSES OF STUDY AND SCHEDULE OF HOURS.

For details see Description of Studies.

Attendance is required of all students at Chapel exercises.

Military drill: Fall and Spring terms, M. and F., 11 to 12.30 p. m. Winter term, T. and Th., 10 to 12. Attendance is required of all male students, except Seniors, for whom it is elective.

FRESHMAN YEAR.

FOR ALL FOUR-YEAR COURSES.

FALL TERM.

	Exercises.
Rhetoric—English 1.....	2
Algebra—Mathematics 1.....	5
Wood Work—Shop Work 1.....	2
Drawing—Drawing 19.....	2
†History—History 1 or 4.....	3
French—French 1..... } or German—German 1 }	3
Inorganic Chemistry—Chemistry 1.....	3
Solid Geometry—Mathematics 2.....	3
Military Science.....	1
Military Drill.....	1

WINTER TERM.

Rhetoric—English 2.....	2
Trigonometry—Mathematics 3.....	4
§Pattern Making and Foundry—Shop Work 2.....	2½
‡Drawing—Drawing 20.....	2½
†History—History 2 or 5.....	3
French—French 2..... } or German—German 2 }	3

† History is taken by women in place of Shop Work. It is also open to students who are prepared for advance work.

§ Engineering and Chemical courses take Shop Work 2; others Shop Work 17.

‡ For students taking History, two exercises per week in Drawing.

Inorganic Chemistry—Chemistry 2.....	3
Military Science.....	1
Military Drill.....	1
Forging—Shop Work 17.....	2½

SPRING TERM.

Rhetoric—English 3.....	1
†Surveying—Mathematics 4.....	3
Mechanics—Physics 1.....	3
‡Mechanics—Physics 21.....	3
†Botany—Botany 8.....	3
†Wood Work—Shop Work 3.....	2
†Horticulture—Horticulture 1.....	2
†Drawing—Drawing 21.....	3
†History—History 3 or 6.....	3
French—French 3.....	} 3
or German—German 3.....	
†Organic Chemistry—Chemistry 3.....	3
Military Science.....	1
Military Drill.....	1
Mechanism—Mechanical Engineering 1.....	3

COURSES IN AGRICULTURE.

SOPHOMORE YEAR.

FALL TERM.

	Exercises.
German 4.....	3
Chemistry 4.....	3
Zoölogy 1.....	3
Heat—Physics 2, eight weeks. }	3
Light—Physics 3, seven weeks }	
Horticulture 2.....	1
Botany 9.....	3
Agriculture 19.....	3
Military Science.....	1
Military Drill	1

† Students in the Engineering Course take Drawing and Shop Work. Students in Chemical Engineering also take Organic Chemistry. Students in the Agricultural Course take Botany, Surveying, Horticulture, and Organic Chemistry. Students in the General Course take Botany and History, and elect between Surveying and Organic Chemistry.

‡ General Course students elect either Physics 1 or 21.

WINTER TERM.

German 5.....	3
Chemistry 4.....	3
Zoölogy 4.....	3
Electricity and Magnetism—Physics 5, five weeks } Sound—Physics 4, five weeks..... }	3
Horticulture 3.....	3
Botany 10.....	3
Military Science.....	1
Military Drill.....	1

SPRING TERM.

German 6.....	3
Zoölogy 3.....	4
Horticulture 2.....	2
Political Science 1.....	5
Agriculture 20.....	3
Botany 11.....	2
Military Science.....	1
Military Drill.....	1

JUNIOR YEAR.

FALL TERM.

*Botany 12 or.....	3
*Zoölogy 5.....	4
Chemistry 6.....	3
Dairying 1 and 3.....	5
Horticulture 4.....	3
Agriculture 2.....	3
Military Science.....	1
Military Drill.....	1

WINTER TERM.

†Botany 13 or.....	3
†Zoölogy 6 or 17 or.....	3
†Agriculture 11.....	4
Chemistry 7.....	2
English 4.....	2
Forestry 1.....	3
Agriculture 3.....	3
Agriculture 10.....	3
Military Science.....	1
Military Drill.....	1

*Elect either Zoology 5 or Botany 12.

†Elect one of these three or some other three-hour scientific course.

SPRING TERM.

†Agriculture 12 or.....	3
†Zoölogy 7, 9 or 10 or.....	3
†Botany 14.....	3
English 5.....	2
Geology 1.....	3
Horticulture 5.....	3
Agriculture 4.....	3
Agriculture 13.....	4
Military Science.....	1
Military Drill.....	1

NOTE.—English 7. A course in debating, one hour per week, is required in the Junior year, either in the winter or spring term.

†Elect one of these three or some other three-hour scientific course.

During the Junior year students who desire and are qualified to take up work in the Biological or Chemical Division of the Agricultural Course may substitute work in those divisions for Dairying, Agriculture 11 and Agriculture 12.

SENIOR YEAR.

FALL TERM.

(Required.)

	Exercises per week.
Geology 2.....	4
History 7.....	4
Agriculture 15.....	2
Thesis.....	1

(Six hours elective from any courses offered.)

WINTER TERM.

(Required.)

Political Science 6.....	3
History 8.....	3
Horticulture 6.....	3
Thesis.....	2

(Six hours elective from any courses offered.)

SPRING TERM.

(Required.)

Meteorology 1.....	3
Agriculture 16.....	3
Agriculture 17.....	3
Thesis	2

(Six hours elective from any courses offered.)

COURSES IN ENGINEERING.

SOPHOMORE YEAR.

FALL TERM.

	Exercises per week.
Analytic Geometry—Mathematics 5.....	5
Descriptive Geometry—Drawing 23.....	2
Heat—Physics 2, eight weeks. }	3
Light—Physics 3, seven weeks }	
German—German 4.....	3
Forge Shop—Shop Work 4.....	2
Mechanism—Mechanical Engineering 2.....	2
Chemical Laboratory—Chemistry 5.....	2
Military Science	1
Military Drill	1

WINTER TERM.

Differential Calculus—Mathematics 6.....	5
Machine Drawing—Drawing 25.....	2
Sound—Physics 4, five weeks }	3
Electricity and Magnetism—Physics 5, five weeks }	
German—German 5.....	3
Machine Shop—Shop Work 5.....	2
Mechanism—Mechanical Engineering 3.....	2
Chemical Laboratory—Chemistry 5.....	2
Military Science.....	1
Military Drill.....	1

SPRING TERM.

Differential Calculus—Mathematics 7.....	5
Electricity and Magnetism—Physics 5.....	3
German—German 6.....	3
Machine Drawing—Drawing 26.....	5
Elementary Steam Engineering—Mechanical Engineering 22	2
Military Science.....	1
Military Drill.....	1

COURSE IN ELECTRICAL ENGINEERING.

JUNIOR YEAR.

FALL TERM.

Exercises per week.

Mechanics of Engineering—Mechanical Engineering 4.....	2
Theoretical Electricity—Electrical Engineering 4.....	3
Least Squares and Precision of Measurements—Physics 6..	3
Steam Engineering—Mechanical Engineering 8.....	4
Direct Currents and Direct Current Dynamos, Electrical Engineering 1.....	3
Machine Drawing—Drawing 27.....	2
Graphic Statics—Mechanical Engineering 7.....	2
Military Science.....	1
Military Drill.....	1

WINTER TERM.

Mechanics of Engineering—Mechanical Engineering 5.....	4
Physical Laboratory—Physics 7.....	3
Steam Engineering—Mechanical Engineering 9.....	3
Direct Current Dynamos and Motors—Electrical Engineer- ing 2.....	3
Theoretical Electricity—Electrical Engineering 5.....	3
Elementary Machine Design—Drawing 28.....	2
Debating—English 7.....	1
Military Science.....	1
Military Drill.....	1

SPRING TERM.

Mechanics of Engineering—Mechanical Engineering 6.....	4
Physical Laboratory—Physics 8.....	3
Steam Engineering—Mechanical Engineering 10.....	4
Direct Current Dynamos and Motors—Electrical Engineering 3	} 6
*Theoretical Electricity—Electrical Engineering 6	
Engine Drawing—Drawing 29.....	2
Military Science.....	1
Military Drill.....	1

SENIOR YEAR.

FALL TERM.

Materials of Construction—Mechanical Engineering 11.....	4
Theoretical Electricity—Electrical Engineering 7.....	6
Mechanical Laboratory—Mechanical Engineering 14.....	2
The Telephone, Electrical Engineering 20, six weeks	} 3
The Telegraph, Electrical Engineering 21, six weeks	
Storage Batteries, Electrical Engineering 22, three weeks	
Hydraulics—Mechanical Engineering 12.....	3
Electrical Laboratory—Electrical Engineering 31.....	2
**Military Drill.....	1

WINTER TERM.

Theoretical Electricity—Electrical Engineering 8.....	6
Alternating Current Phenomena—Electrical Engineering 9	3
Electrical Laboratory—Electrical Engineering 16.....	2
Electrical Lighting—Electrical Engineering 23, six weeks	} 3
Power Distribution for Electric Railroads—Electrical Engineering 24, four weeks.....	
Mechanical Laboratory—Mechanical Engineering 15.....	3
Multiple Expansion Engines—Mechanical Engineering 17...	3
**Military Drill.....	1

SPRING TERM.

Alternating Current Phenomena—Electrical Engineering 10, first five weeks.....	} 3
High Tension Power Transmission—Electrical Engineering 25, last five weeks.....	

* See assignment of time under Electrical Engineering 6, in Description of Subjects.

** Elective.

Electrical Laboratory—Electrical Engineering 33, first five weeks	2
Political Economy—Political Science 1.....	5
Mechanical Laboratory—Mechanical Engineering 16.....	2
Gas and Hot Air Engines—Mechanical Engineering 18....	3
Thesis—Electrical Engineering 34.....	3
**Military Drill.....	1

COURSE IN MECHANICAL ENGINEERING.

JUNIOR YEAR.

FALL TERM.

Exercises per week.

Mechanics of Engineering—Mechanical Engineering 4.....	2
Least Squares and Precision of Measurements—Physics 6..	3
Steam Engineering—Mechanical Engineering 8.....	4
The Elements of Electrical Engineering 41.....	3
Iron Work—Shop Work 6.....	2
Machine Drawing—Drawing 27.....	2
Graphic Statics—Mechanical Engineering 7.....	2
Military Science.....	1
Military Drill.....	1

WINTER TERM.

Mechanics of Engineering—Mechanical Engineering 5.....	4
Physical Laboratory—Physics 7.....	3
Steam Engineering—Mechanical Engineering 9.....	3
The Elements of Electrical Engineering—Electrical Engineering 42.....	3
Iron Work—Shop Work 7.....	2
Elementary Machine Design—Drawing 28.....	2
Debating—English 7.....	1
Military Science.....	1
Military Drill.....	1

SPRING TERM.

Mechanics of Engineering—Mechanical Engineering 6.....	4
Physical Laboratory—Physics 8.....	3
Steam Engineering—Mechanical Engineering 10.....	4
Alternating Currents—Electrical Engineering 43.....	3
Iron Work—Shop Work 8.....	2
Engine Drawing—Drawing 29.....	2
Military Science.....	1
Military Drill.....	1

**Elective.

SENIOR YEAR.

FALL TERM.

Materials of Construction—Mechanical Engineering 11.....	4
Hydraulics—Mechanical Engineering 12.....	3
Machine Design—Drawing 30.....	5
Mechanical Laboratory—Mechanical Engineering 14.....	2
Iron Work—Shop Work 9.....	2
Alternating Currents, Electrical Engineering 44, first eight weeks	3
Applications of Electricity, Electrical Engineering 45, last seven weeks	
**Military Drill.....	1

WINTER TERM.

Mill Design—Drawing 31.....	4
Mechanical Laboratory—Mechanical Engineering 15.....	3
Multiple Expansion Engines—Mechanical Engineering 17..	3
Iron Work—Shop Work 10.....	1
Specifications and Contracts—Mechanical Engineering 20...	3
Thesis	2
*Hydraulic Motors—Mechanical Engineering 23.....	1½
*Concrete Steel Construction—Mechanical Engineering 24..	1½
**Military Drill.....	1

SPRING TERM.

Gas and Hot Air Engines—Mechanical Engineering 18.....	3
Mechanical Laboratory—Mechanical Engineering 16.....	2
Political Economy—Political Science 1.....	5
Iron Work—Shop Work 11.....	2
Thesis	3
Mill Design—Drawing 32.....	3
**Military Drill.....	1

COURSE IN CHEMICAL ENGINEERING.

SOPHOMORE YEAR.

FALL TERM.

Exercises per week.

Analytic Geometry—Mathematics 5.....	5
Elementary Machine Drawing—Drawing 24.....	2
German—German 4.....	3

* Hydraulic Motors is given 3 exercises per week the first five weeks and Concrete-Stone Construction 3 exercises per week the last five weeks.

** Elective.

Chemical Laboratory—Chemistry 4.....	5
Heat—Physics 2, eight weeks	} 3
Light—Physics 3, seven weeks	
Military Science.....	1
Military Drill.....	1

WINTER TERM.

Differential Calculus—Mathematics 6.....	5
German—German 5.....	3
Chemical Laboratory—Chemistry 10.....	7
Sound—Physics 4, five weeks	}..... 3
Electricity and Magnetism—Physics 5, five weeks	
Military Science.....	1
Military Drill.....	1

SPRING TERM.

Integral Calculus—Mathematics 7.....	5
Mineralogy—Geology 1.....	3
German—German 6.....	3
Organic Chemistry—Chemistry 8.....	2
Chemical Laboratory—Chemistry 11.....	3
Electricity and Magnetism—Physics 5.....	3
Military Science.....	1
Military Drill.....	1

JUNIOR YEAR.

FALL TERM.

Chemistry of Plant Growth—Chemistry 6.....	3
Organic Chemistry—Chemistry 9.....	3
French—French 4.....	3
Mechanics of Engineering—Mechanical Engineering 4.....	2
Graphic Statics—Mechanical Engineering 7.....	2
Chemical Laboratory—Chemistry 11.....	4
Military Science.....	1
Military Drill.....	1

WINTER TERM.

Chemical Laboratory—Chemistry 11.....	4
Industrial Chemistry—Chemistry 13.....	2
Mechanics of Engineering—Mechanical Engineering 5.....	4
French—French 5.....	3
Physical Laboratory—Physics 7.....	3
Debating English 7.....	1
Military Science.....	1
Military Drill.....	1

SPRING TERM.

Chemical Laboratory—Chemistry 11.....	4
Metallurgy—Chemistry 14.....	2
Mechanics of Engineering—Mechanical Engineering 6.....	5
French—French 6.....	3
Physical Laboratory—Physics 8.....	3
Military Science.....	1
Military Drill.....	1

SENIOR YEAR.

FALL TERM.

Chemical Laboratory—Chemistry 11 or Chemistry 21.....	8
Iron Work—Shop Work 5.....	2
Chemical Journals—Chemistry 12.....	1
Steam Engineering—Mechanical Engineering 8.....	4
Industrial Electricity—Electrical Engineering 51.....	3
**Military Drill.....	1

WINTER TERM.

Chemical Laboratory and Thesis—Chemistry 20 or 21.....	8
Chemical Journals—Chemistry 12.....	1
Physical Chemistry—Chemistry 15.....	3
Industrial Electricity—Electrical Engineering 52.....	3
Chaucer to Wordsworth—English 4.....	2
**Military Drill.....	1

SPRING TERM.

Chemical Laboratory and Thesis—Chemistry 20 or 21.....	6
Chemical Journals—Chemistry 12.....	1
Assaying—Chemistry 19.....	1
Physical Chemistry—Chemistry 16.....	2
Political Economy—Political Science 1.....	5
Wordsworth to Browning—English 5.....	2
**Military Drill.....	1

GENERAL COURSE.

SOPHOMORE YEAR.

FALL TERM.

Exercises per week.

Invertebrate Zoölogy—Zoölogy 1.....	3
German—German 4.....	3
*Botany—Botany 9.....	3
*Chemical Laboratory—Chemistry 4.....	3

**Elective.

*Heat and Light—Physics 2 and 3, or Physics 21, 22 and 23	3
*History—History 1 or 4.....	4
*Analytic Geometry—Mathematics 5.....	5
*Spanish—Spanish 1.....	3
Military Science.....	1
Military Drill.....	1

*Elect 10 exercises.

WINTER TERM.

German—German 5.....	3
*Chemical Laboratory—Chemistry 4.....	3
*Sound and Electricity—Physics 4 and 5 or Physics 25.....	3
*History—History 2 or 5.....	3
*General Entomology—Zoölogy 4.....	3
*Botany—Botany 10.....	3
*Differential Calculus—Mathematics 6.....	5
*Free-hand Drawing—Drawing 33.....	2
*Spanish—Spanish 2.....	3
*Philosophy 1.....	2
Military Science.....	1
Military Drill.....	1

*Elect 13 exercises.

SPRING TERM.

	Exercises per week
Political Economy—Political Science 1.....	5
German—German 6.....	3
*Electricity and Magnetism—Physics 5.....	3
*History—History 3 or 6.....	3
*Economic Entomology—Zoölogy 3.....	4
*Botany—Botany 11.....	3
*Free-hand Drawing—Drawing 34.....	3
*Integral Calculus—Mathematics 7.....	5
*Philosophy 2.....	2
*Spanish—Spanish 3.....	3
Military Science.....	1
Military Drill.....	1

*Elect 8 exercises.

JUNIOR YEAR.

Sixteen exercises required; all elective, with the exception of Military Science, Military Drill and English 7.

FALL TERM.

Psychology—Philosophy 3.....	3
French—French 4.....	3
American Political History—History 7.....	4
Chemistry of Plant Growth—Chemistry 6.....	3
Chemical Laboratory—Chemistry 4.....	3
Least Squares and Precision of Measurements—Physics 6..	3
Architectural Drawing—Drawing 35.....	3
Differential Equations—Mathematics' 8.....	2
Spanish—Spanish 1.....	3
Vertebrate Anatomy and Physiology—Zoölogy 5.....	4
Military Science.....	1
Military Drill.....	1

WINTER TERM.

French—French 5.....	3
American Political History—History 8.....	3
English Literature—English 4.....	2
Philosophy of Education—Philosophy 4.....	3
Money and Banking, or International Law—Political Science 4 or 6.....	3
Chemistry of Food and Nutrition—Chemistry 7.....	2
Chemical Laboratory—Chemistry 4.....	3
Physical Laboratory—Physics 7.....	3
Architectural Drawing—Drawing 36.....	2
Quaternions—Mathematics 9.....	2
Principles of Zoölogy or Comparative Anatomy—Zoölogy 6 or 17.....	3
Spanish—Spanish 2.....	3
Debating—English 7.....	1
Military Science.....	1
Military Drill.....	1

SPRING TERM.

French—French 6.....	3
Mineralogy—Geology 1.....	3
Logic, or Science of Thought—Philosophy 5 or 6.....	3
American Political History—History 9.....	2
Socialism or Finance—Political Science 5 or 7.....	3
English—English 5.....	2
Architectural Drawing—Drawing 37.....	3
Physical Laboratory—Physics 8.....	3

Spanish—Spanish 3.....	3
Debating—English 7.....	1
Economic Ornithology or Advanced Entomology—Zoölogy 7 or 9.....	3
Military Science.....	1
Military Drill.....	1

SENIOR YEAR.

Sixteen exercises required; all elective.

FALL TERM.

Laws of Business—Political Science 2	}	5
Constitutional Law—Political Science 3		
Psychology—Philosophy 3.....		3
Advanced Psychology—Philosophy 11.....		3
French—French 7.....		3
Literary Criticism—English 6.....		2
German—German 7.....		3
American Political History—History 10.....		3
Advanced Zoölogy—Zoölogy 11.....		4
Advanced Botany—Botany 5 or 12.....		3
Elementary Geology—Geology 2.....		4
Architectural Drawing—Drawing 38.....		3
Spanish—Spanish 1.....		3
Industrial Electricity—Electrical Engineering 61.....		3
Thesis Work.....		2
Military Drill.....		1

WINTER TERM.

Money and Banking, or International Law—Political Sci- ence 4 or 6.....	3
Philosophy 4.....	3
French—French 8.....	3
German—German 8.....	3
American Literature—English 8.....	3
Astronomy—Mathematics 10.....	4
Advanced Zoölogy—Zoölogy 12.....	3
Principles of Zoölogy or Comparative Anatomy—Zoölogy 6 or 17.....	3
Advanced Botany—Botany 6 or 13.....	3
Architectural Drawing—Drawing 39.....	3
Spanish—Spanish 2.....	3
Thesis Work.....	1 or 2
Military Drill.....	1

SPRING TERM.

American Literature—English 9.....	3
French—French 9.....	3
German—German 9.....	3
Meteorology—Meteorology 1.....	3
Roads—Mathematics 11.....	3
Socialism or Finance—Political Science 5 or 7.....	3
Logic or Science of Thought—Philosophy 5 or 6.....	3
Advanced Zoölogy—Zoölogy 13.....	3
Economic Ornithology or Advanced Entomology—Zoölogy 7 or 9.....	3
Advanced Botany—Botany 7 or 14.....	3
Architectural Drawing—Drawing 40.....	3
Spanish—Spanish 3.....	3
Thesis Work.....	1 or 2
Military Drill.....	1

HOURS OF STUDY.

FRESHMAN CLASS FOR ALL

Term.	Day.	Section.	8-9	9-10	10-11
Fall.	Mon.	I II	..... .....	Mathematics 1....	..... Chemistry 1.....
	Tues.	I II	German 1.....	French 1..... Mathematics 1....	Military Science... German 1.....
	Wed.	I II	English 1..... .....	..... Eng. 1 & Math. 1..	Chemistry 1.....
	Thur.	I II	German 1.....	French 1..... Mathematics 1....	Mathematics 2.... German 1..... Military Science ...
	Fri	I II	English 1..... Military Science...	History 1 or 4.... Eng. 1 & Math. 1..	..... Chemistry 1.....
	Sat.	I II	German 1.....	French 1..... Mathematics 1....	Mathematics 2.... German 1.....
Winter	Mon.	I II	..... .....	..... .....	{ Chemistry 2....
	Tues.	I II	German 2..... Military Science...	French 2.....	Drill German 2.....
	Wed.	I II	Military Science... English 2.....	English 2..... History 2 or 5....	{ Chemistry 2....
	Thur.	I II	German 2.....	French 2.....	Drill German 2.....
	Fri.	I II	English 2.....	Mathematics 3.... English 2.....	{ Chemistry 2....
	Sa	I II	German 2.....	French 2.....	Mathematics 3.... German 2.....
Spring.	Mon.	I II	Military Science... Chemistry 3.....	History 3 or 6.... Mech. Engin. 1.... Horticulture 1....	Physics 1.....
	Tues.	I II	{ German 3.....	French 3..... Drawing 21.....	Botany 8..... Drawing 21.....
	Wed.	I II	English 3..... Chemistry 3.....	Mech. Engin. 1... English 3..... Horticulture 1....	Physics 1.....
	Thur.	I II	{ German 3.....	French 3..... Drawing 21.....	Botany 8..... Drawing 21.....
	Fri.	I II	English 3..... Chemistry 3..... German	Mech. Engin. 1.... English 3.....	Physics 1..... Military Science...
	Sat.	I II	{ German 3.....	French 3..... Drawing 21.....	Botany 8..... Drawing 21.....

FOUR-YEAR COURSES.

Term.	Day.	Sec- tion.	11-11.50	1.30-2.30	2.30-4
Fall.	Mon.	I II	{ Drill.....	Drawing 19 Shop-work 1.....	Drawing 19 Shop-work 1
	Tues.	I II	Mathematics 1....	Drawing 19 Shop-work 1.....	Drawing 19 Shop-work 1
	Wed.	I II	..... History 1 or 4.....	Mathematics 1 .....	..... Mathematics 1.....
	Thur.	I II	Mathematics 1....	Shop-work 1 or.... Drawing 19	History 1 or 4 Drawing 19
	Fri.	I II	..... Drill.....	Shop-work 1..... Drawing 19	Shop-work 1 Drawing 19
	Sat.	I II	Mathematics 1.... .....	.....	.....
Winter	Mon.	I II	..... Mathematics 3....	Drawing 20 Shop-work 2.....	Drawing 20 Shop-work 2
	Tues.	I II	Mathematics 3.... Drill	Drawing 20 Shop-work 2.....	Drawing 20 Shop-work 2
	Wed.	I II	..... Mathematics 3....	Drawing 20 Shop-work 2	Shop-work 2 Drawing 20
	Thu	I II	Mathematics 3.... Drill.....	Shop-work 2..... Drawing 20	History 2 or 5 Drawing 20
	Fri.	I II	History 2 or 5.... Mathematics 3....	Shop-work 2..... Drawing 20.....	Shop-work 2 Drawing 20
	Sat.	I II	..... Mathematics 3....	.....	.....
Spring	Mon.	I II	Drill.....	Mathematics 4....	Mathematics 4....
	Tues.	I II	Botany 8..... Drawing 21	Mathematics 4....	Mathematics 4....
	Wed.	I II	German 3.....	Mathematics 4....	Mathematics 4....
	Thur.	I II	Botany 8..... Drawing 21	Shop-work 3..... History 3 or 6....	Shop-work 3..... History 3 or 6....
	Fri.	I II	Drill.....	Shop-work 3..... History 3 or 6....	Shop-work 3..... History 3 or 6....
	Sat.	I II	Botany 8..... Drawing 21	.....	.....

SOPHOMORE CLASS—FALL TERM—FOR ALL FOUR-YEAR COURSES.

DAY.		8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Monday.....		Zoology 1	Zoology 1	Botany 9	Drill	Chemistry 4	Chemistry 4
Tuesday.....		Agriculture 18	Zoology 1	Physics 2 & 3	German 4	Chemistry 4	Chemistry 4
Wednesday.....		Agriculture 19	Botany 9	Botany 9	.....	Chemistry 4	Chemistry 4
Thursday.....		Zoology 1	Zoology 1	Physics 2 & 3	German 4	Agriculture 19	Agriculture 19
Friday.....		.....	Zoology 1	Military Science	Drill	Horticulture 2	Horticulture 2
Saturday.....		Botany 9	Botany 9	Physics 2 & 3	German 4	.....	.....
Monday.....		Zoology 1	Zoology 1	Botany 9	Drill	Spanish 1 Chemistry 4	Chemistry 4
Tuesday.....		Mathematics 5	Zoology 1	Physics 2 & 3	German 4	Spanish 1 Chemistry 4	Chemistry 4
Wednesday.....		Mathematics 5	Botany 9	Botany 9	History 1 or 4	Spanish 1 History 1 or 4	History 1 or 4
Thursday.....		Mathematics 5	Zoology 1	Physics 2 & 3	German 4	History 1 or 4	History 1 or 4
Friday.....		Zoology 1 Mathematics 5	History 1 or 4	Military Science	Drill	Chemistry 4	Chemistry 4
Saturday.....		Mathematics 5 Botany 9	Botany 9	Physics 2 & 3	German 4	.....	.....

AGRICULTURE.

GENERAL.

ENGINEERING.

Monday	I Shop-work 4	I Shop-work 4	I Shop-work 4	Drill	{ 1 Chemistry 5 { II Shop-work 4 { II Shop-work 4 { I Chemistry 5 { II Chemistry 5 { I Shop-work 4
Tuesday	Mathematics 5	Military Science	Physics 2 & 3	German 4	{ II Shop-work 4 { I Chemistry 5 { II Chemistry 5 { I Shop-work 4
Wednesday	Mathematics 5	Drawing 23	Drawing 23	Drawing 23	{ II Chemistry 5 { I Shop-work 4
Thursday	Mathematics 5	Mechanical Eng. 2	Physics 2 & 3	German 4	Special Work
Friday	Mathematics 5	Drawing 23	Drawing 23	Drill	
Saturday	Mathematics 5	Mechanical Eng. 2	Physics 2 & 3	German 4	

CHEMICAL ENG.

Monday .....	.....	.....	.....	Drill	Chemistry 4
Tuesday	Mathematics 5	Military Science	Physics 2 & 3	German 4	Chemistry 4
Wednesday	Mathematics 5	Drawing 24	Drawing 24	Drawing 24	Chemistry 4
Thursday	Mathematics 5	.....	Physics 2 & 3	German 4	Chemistry 4
Friday	Mathematics 5	Drawing 24	Drawing 24	Drill	Chemistry 4
Saturday	Mathematics 5	.....	Physics 2 & 3	German 4	.....

ENGINEERING.

Monday.....	I Shop-work 5	I Shop-work 5	I Shop-work 5	Physics 4 & 5	{ I Chemistry 5 II Shop-work 5
Tuesday.....	Mathematics 6	Mech. Eng. 3	Drill	German 5	{ II Shop-work 5 I Chemistry 5
Wednesday.....	Mathematics 6	Drawing 25	Physics 4 & 5	Drawing 25	{ I Chemistry 5 II Shop-work 5
Thursday.....	Mathematics 6	Mech. Eng. 3	Drill	German 5	{ I Shop-work 5 Military Science
Friday.....	Mathematics 6	Drawing 25	Physics 4 & 5	Drawing 25	{ II Chemistry 5 I Shop-work 5
Saturday.....	Mathematics 6	Drawing 25	Drawing 25	German 5	.....

CHEMICAL ENG.

Monday.....	Chemistry 10	Chemistry 10	Chemistry 10	Physics 4 & 5	Chemistry 10
Tuesday.....	Mathematics 6	Military Science	Drill	German 5	Chemistry 10
Wednesday.....	Mathematics 6	Chemistry 10	Physics 4 & 5	.....	Chemistry 10
Thursday.....	Mathematics 6	.....	Drill	German 5	Chemistry 10
Friday.....	Mathematics 6	Chemistry 10	Physics 4 & 5	.....	Chemistry 10
Saturday.....	Mathematics 6	Chemistry 10	Chemistry 10	German 5	.....

SOPHOMORE CLASS—SPRING TERM—FOR ALL FOUR-YEAR COURSES.

DAY.	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Monday.....	Military Science	Horticulture 2	Horticulture 2	Drill	Zoology 3	Zoology 3
Tuesday.....	.....	Political Science 1	Agriculture 20	German 6	Horticulture 2	Horticulture 2
Wednesday.....	.....	Political Science 1	Agriculture 20	Agriculture 20	Zoology 3	Zoology 3
Thursday.....	.....	Political Science 1	Zoology 3	German 6	Botany 11	Botany 11
Friday.....	Zoology 3	Political Science 1	Agriculture 20	Drill	Botany 11	Botany 11
Saturday.....	.....	Political Science 1	.....	German 6	.....	.....

Monday.....	Military Science	History 3 or 6	Drawing 34	Drill	Zoology 3 Spanish 3	Zoology 3
Tuesday.....	Mathematics 7	Political Science 1	Physics 5	German 6	Spanish 3 Botany 11	Botany 11
Wednesday.....	Mathematics 7	Political Science 1	Drawing 12 Philosophy 5	Drawing 12	Spanish 3	Zoology 3
Thursday.....	Mathematics 7	Political Science 1	Zoology 3 Physics 5	German 6	History 3 or 6 Botany 11	Botany 11 History 3 or 6
Friday.....	Mathematics 7 Zooology 3	Political Science 1	Philosophy 5 Drawing 34	Drill	History 3 or 6	History 3 or 6
Saturday.....	Mathematics 7	Political Science 1	Physics 5	German 6	.....	.....

ENGINEERING.					
Monday.....	.....	Mech. Eng. 22	Drill	Drawing 26	Drawing 26
Tuesday.....	Mathematics 7	Physics 5	German 6	Drawing 26	Drawing 26
Wednesday.....	Mathematics 7	Mech. Eng. 22	.....	Drawing 26	Drawing 26
Thursday.....	Mathematics 7	Physics 5	German 6	Drawing 26	Drawing 26
Friday.....	Mathematics 7	.....	Drill	Drawing 26	Drawing 26
Saturday.....	Mathematics 7	Physics 5	German 6	.....	.....

CHEMICAL ENG.					
Monday.....	.....	Geology 1	Drill	Chemistry 11	Chemistry 11
Tuesday.....	Mathematics 7	Physics 5	German 6	Chemistry 11	Chemistry 11
Wednesday.....	Mathematics 7	Geology 1	.....	Chemistry 11	Chemistry 11
Thursday.....	Mathematics 7	Physics 5	German 6	Chemistry 8	Chemistry 8
Friday.....	Mathematics 7	Geology 1	Drill	Chemistry 8	Chemistry 8
Saturday.....	Mathematics 7	Physics 5	German 6	.....	.....

JUNIOR CLASS—FALL TERM—FOR ALL FOUR-YEAR COURSES.

DAY.	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Monday.....	Dairying 1 & 3	Dairying 1 & 3	Horticulture 4	Drill	Agriculture 2	Agriculture 2
Tuesday.....	Chemistry 6	Dairying 1 & 3	Dairying 1 & 3	Agriculture 2	Horticulture 4	Horticulture 4
Wednesday.....	Chemistry 6	Dairying 1 & 3	*Zoology 5	Agriculture 2	Horticulture 4	Horticulture 4
Thursday.....	Dairying 1 & 3	Dairying 1 & 3	Dairying 1 & 3	Dairying 1 & 3	.....	.....
Friday.....	Chemistry 6	Military Science	*Zoology 5	Drill	*Zoology 5	*Zoology 5
Saturday.....	*Zoology 5 *Botany 12	*Zoology 5 Botany 12	*Zoology 5 Botany 12	*Botany 12	.....	*Botany 12

* Elective.

DAY.	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Monday.....	.....	French 4	.....	Drill	Chemistry 4 Spanish 1	Physics 6
Tuesday.....	Drawing 35 Chemistry 6	Drawing 35	History 7	Philosophy 3	Chemistry 4 Spanish 1	Physics 6
Wednesday.....	Chemistry 6	Mathematics 8 French 4	Zoology 5	.....	Chemistry 4 Spanish 1	Physics 6
Thursday.....	.....	Drawing 35	History 7	Philosophy 3	Drawing 35	Drawing 35
Friday.....	Drawing 35 Chemistry 6	French 4 Mathematics 8	Zoology 5 History 7 Military Science	Drill	History 7	History 7
Saturday.....	Zoology 5	Zoology 5	Zoology 5	Philosophy 3	.....	.....

GENERAL.

AGRICULTURE.

MECHANICAL ENG.

Monday.....	Elec. Eng. 1	Mechan. Eng. 7	Drill	Physics 6	Physics 6
Tuesday.....	Drawing 27	Drawing 27	Mechan. Eng. 8	Physics 6	Physics 6
Wednesday.....	Electrical Eng. 1	Mechan. Eng. 4	Mechan. Eng. 8	Physics 6	Physics 6
Thursday.....	Drawing 27	Drawing 27	Mechan. Eng. 8	Shop-work 6	Shop-work 6
Friday.....	Elec. Eng. 1	Military Science	Drill	Shop-work 6	Shop-work 6
Saturday.....	.....	Mechan. Eng. 4	Mechan. Eng. 8	.....	.....

CHEMICAL ENG.

Monday.....	.....	Mech. Eng. 7	Drill	Chemistry 9	Chemistry 9
Tuesday.....	Chemistry 6	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
Wednesday.....	Chemistry 6	Mechan. Eng. 4	.....	Chemistry 9	Chemistry 9
Thursday.....	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
Friday.....	Chemistry 6	Military Science	Drill	Chemistry 11	Chemistry 11
Saturday.....	.....	Mech. Eng. 4	.....	.....	.....

ELECTRICAL ENG.

Monday.....	Elec. Eng. 4	Mech. Eng. 7	Drill	Physics 6	Physics 6
Tuesday.....	Drawing 27	Drawing 27	Mech. Eng. 8	Physics 6	Physics 6
Wednesday.....	Elec. Eng. 1	Mech. Eng. 4	Mech. Eng. 8	Physics 6	Physics 6
Thursday.....	Drawing 27	Drawing 27	Mech. Eng. 8	.....	.....
Friday.....	Elec. Eng. 1	Elec. Eng. 4	Drill	.....	.....
Saturday.....	.....	Mech. Eng. 4	Mech. Eng. 8	.....	.....

JUNIOR CLASS—WINTER TERM—FOR ALL FOUR-YEAR COURSES.

DAY.	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Monday.....	English 7	.....	.....	*Agriculture 11 *Zoology 6 or 17	Agriculture 3	Agriculture 3
Tuesday.....	English 4	Agriculture 10	Forestry 1	Drill	*Agriculture 11 Forestry 1	..... Forestry 1
Wednesday.....	Chemistry 7	.....	Agriculture 3	*Agriculture 11 *Zoology 6 or 17	.....	.....
Thursday.....	English 4	Agriculture 10	Forestry 1	Drill	.....	.....
Friday.....	Chemistry 7	.....	Agriculture 3	*Agriculture 11 *Zoology 6 or 17	Agriculture 10	Agriculture 10
Saturday.....	Military Science	.....	.....	Geology 1	* Elective.	.....

AGRICULTURE.

DAY.	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Monday.....	English 7	.....	History 8	French 5 Zoology 6 or 17	Chemistry 4 Spanish 2	Physics 7
Tuesday.....	English 4	Philosophy 4	Political Science 4 or 6	Drill	Chemistry 4 Spanish 2	Physics 7
Wednesday.....	Chemistry 7	Mathematics 9	History 8	French 5 Zoology 6 or 17	Chemistry 4 Spanish 2	Physics 7
Thursday.....	English 4	Philosophy 4	Political Science 4 or 6	Drill	Drawing 36	.....
Friday.....	Chemistry 7	Mathematics 9	History 8	French 5 Zoology 6 or 17	Drawing 36	.....
Saturday.....	Military Science	Philosophy 4	Political Science 4 or 6	.....	.....	.....

GENERAL.

MECHANICAL ENG.					
Monday.....	English 7	Elec. Eng. 42	Mech. Eng. 5	.....	Physics 7
Tuesday.....	Drawing 28	Drawing 28	Mech. Eng. 9	Drill	Physics 7
Wednesday.....	Elec. Eng. 42	Mech. Eng. 5	.....	.....	Physics 7
Thursday.....	Elec. Eng. 42	Mech. Eng. 5	Mech. Eng. 9	Drill	Shop-work 7
Friday.....	Drawing 28	Drawing 28	Drawing 28	Drawing 28	Shop-work 7
Saturday.....	Military Science	Mech. Eng. 5	Mech. Eng. 9	.....	.....

CHEMICAL ENG.					
Monday.....	English 7	.....	Mech. Eng. 5	French 5	Physics 7
Tuesday.....	Chemistry 11	Chemistry 11	Chemistry 13	Drill	Physics 7
Wednesday.....	.....	Mech. Eng. 5	.....	French 5	Physics 7
Thursday.....	.....	Mech. Eng. 5	Chemistry 13	Drill	Chemistry 11
Friday.....	Chemistry 11	Chemistry 11	Chemistry 11	French 5	Chemistry 11
Saturday.....	Military Science	Mech. Eng. 5	.....	.....	.....

ELECTRICAL ENG.					
Monday.....	English 7	Elec. Eng. 2	Mech. Eng. 5	Elec. Eng. 5	Physics 7
Tuesday.....	Drawing 28	Drawing 28	Mech. Eng. 9	Drill	Physics 7
Wednesday.....	Elec. Eng. 2	Mech. Eng. 5	Drawing 28	Elec. Eng. 5	Physics 7
Thursday.....	Elec. Eng. 2	Mech. Eng. 5	Mech. Eng. 9	Drill	.....
Friday.....	Drawing 28	Drawing 28	Drawing 28	Elec. Eng. 5	.....
Saturday.....	Military Science	Mech. Eng. 5	Mech. Eng. 9	.....	.....

JUNIOR CLASS—SPRING TERM—FOR ALL FOUR-YEAR COURSES.

AGRICULTURE.						
DAY.	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Monday.....	*Zoology 7 or 9	Geology 1	Geology 1	Drill	Horticulture 5	Horticulture 5
Tuesday.....	*Zoology 7 or 9	Military Science	English 5	Agriculture 4	.....	.....
Wednesday.....	Agriculture 13	Geology 1	Geology 1	English 7	.....	.....
Thursday.....	*Agriculture 12 *Zoology 7 or 9	Horticulture 5	English 5	Agriculture 13	Agriculture 4	Agriculture 4
Friday.....	*Agriculture 12	Geology 1	Geology 1	Drill	Horticulture 5	Horticulture 5
Saturday.....	*Agriculture 12 *Zoology 7 or 9	Agriculture 13	Agriculture 13	Agriculture 4	.....	.....
* Elective.						
GENERAL.						
Monday.....		Geology 1	French 6 Geology 1	Drill	Spanish 3 Physics 8	Physics 8
Tuesday.....	Zoology 7 or 9 Philosophy 10	Military Science	English 5	Political Science 5 or 7	Spanish 3 Physics 8 History 9	Physics 8 History 9
Wednesday.....		Geology 1	French 6 Geology 1	.....	Spanish 3	Physics 8
Thursday.....	Philosophy 10 Zoology 7 or 9	.....	English 5	Political Science 5 or 7	Drawing 37 History 9	History 9
Friday.....		Geology 1	French 6 Geology 1	Drill	Drawing 37	Drawing 37
Saturday.....	Philosophy 10 Zoology 7 or 9	.....	Drawing 37	Political Science 5 or 7	.....	.....

MECHANICAL ENG.					
Monday	Drawing 29	Drawing 29	Drawing 29	Drill	Physics 8
Tuesday	Mech. Eng. 5	Military Science	Mech. Eng. 10	Elec. Eng. 43	Physics 8
Wednesday	Drawing 29	Drawing 29	Drawing 29	.....	Physics 8
Thursday	Mech. Eng. 5	.....	Mech. Eng. 10	Elec. Eng. 43	Shop-work 8
Friday	Mech. Eng. 5	.....	Mech. Eng. 10	Drill	Shop-work 8
Saturday	Mech. Eng. 5	Elec. Eng. 43	Mech. Eng. 10	.....	.....

CHEMICAL ENG.					
Monday	Chemistry 11	Chemistry 11	French 6	Drill	Physics 8
Tuesday	Mech. Eng. 6	Military Science	English 5	Chemistry 14	Physics 8
Wednesday	Chemistry 11	Chemistry 11	French 6	Chemistry 11	Physics 8
Thursday	Mech. Eng. 6	.....	English 5	Chemistry 14	Chemistry 11
Friday	Chemistry 11	Mech. Eng. 6	.....	Drill	Chemistry 11
Saturday	Mech. Eng. 6	Chemistry 11	French 6	Chemistry 11	.....

ELECTRICAL ENG.					
Monday	Drawing 29	Drawing 29	Drawing 29	Drill	Physics 8
Tuesday	Mech. Eng. 5	Military Science	Mech. Eng. 10	Elec. Eng. 3	Physics 8
Wednesday	Drawing 29	Drawing 29	Drawing 29	Elec. Eng. 6	Physics 8
Thursday	Mech. Eng. 5	.....	Mech. Eng. 10	Elec. Eng. 3	.....
Friday	Mech. Eng. 5	Elec. Eng. 6	Mech. Eng. 10	Drill	.....
Saturday	Mech. Eng. 5	Elec. Eng. 3	Mech. Eng. 10	Military Science	.....

CHEMICAL ENG.					
Monday.....	Chemistry 11 or 21	Chemistry 11 or 21	.....	Elec. Eng. 51	Chemistry 11 or 21
Tuesday.....	Chemistry 11 or 21	Chemistry 11 or 21	Chemistry 11 or 21	Mechan. Eng. 8	Chemistry 11 or 21
Wednesday.....	Shop work 18	Shop work 18	Shop work 18	Shop work 18	Elec. Eng. 51
Thursday.....	Chemistry 11 or 21	Chemistry 11 or 21	Chemistry 11 or 21	Mechan. Eng. 8	Chemistry 11 or 21
Friday.....	Elec. Eng. 51	Chemistry 11 or 21	Chemistry 11 or 21	Mechan. Eng. 8	Chemistry 11 or 21
Saturday.....	.....	Chemistry 12	.....	Mechan. Eng. 8	.....

ELECTRICAL ENG.					
Monday.....	.....	Mechan. Eng. 12	Mechan. Eng. 11	.....	Elec. Eng. 31
Tuesday.....	Mechan. Eng. 11	Elec. Eng. 7	Elec. Eng. 20, 21 and 22	Elec. Eng. 7	.....
Wednesday.....	Elec. Eng. 20, 21 and 22	Mechan. Eng. 12	Mechan. Eng. 11	.....	Elec. Eng. 31
Thursday.....	Mechan. Eng. 11	Mechan. Eng. 12	Elec. Eng. 20, 21 and 22	Elec. Eng. 7	Mechan. Eng. 14
Friday.....	.....	Elec. Eng. 7	.....	.....	Mechan. Eng. 14
Saturday.....	.....	Elec. Eng. 7	.....	Elec. Eng. 7	.....

SENIOR CLASS—WINTER TERM—FOR ALL FOUR-YEAR COURSES.

DAY.	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Monday.....			History 8	*Zoology 6 or 17		
Tuesday.....		Horticulture 6	Political Science 6	.....	*Agriculture 6	*Agriculture 6
Wednesday.....		*Agriculture 5	History 8	*Zoology 6 or 17	*Agriculture 6	*Agriculture 6
Thursday.....		Horticulture 6	Political Science 6	.....	*Agriculture 21	*Agriculture 21
Friday.....	*Agriculture 21	*Agriculture 5	History 8	*Zoology 6 or 17	Horticulture 6	Horticulture 6
Saturday.....		*Agriculture 5	Political Science 6	.....	
		*Elective.				

Monday.....	Drawing 31	Drawing 31	Mechan. Eng. 20	Mechan. Eng. 17	Thesis	Thesis
Tuesday.....	Drawing 31	Drawing 31	Drawing 31	Mechan. Eng. 23 or 24	Thesis	Thesis
Wednesday.....	Drawing 31	Drawing 31	Mechan. Eng. 20	Mechan. Eng. 17	Mechan. Eng. 15	Mechan. Eng. 15
Thursday.....	Drawing 31	Drawing 31	Drawing 31	Mechan. Eng. 23 or 24	Mechan. Eng. 15	Mechan. Eng. 15
Friday.....	Shop-work 10	Shop-work 10	Shop-work 10	Mechan. Eng. 17	Mechan. Eng. 15	Mechan. Eng. 15
Saturday.....	Drawing 31	Mechan. Eng. 20	Mechan. Eng. 9	Mechan. Eng. 23 or 24		

AGRICULTURE.

MECHANICAL ENG.

Monday.....	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Elec. Eng. 23	Chemistry 20 or 21	Chemistry 20 or 21
Tuesday.....	English 4	.....	.....	Chemistry 15	Chemistry 20 or 21	Chemistry 20 or 21
Wednesday.....	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Elec. Eng. 52	Chemistry 20 or 21	Chemistry 20 or 21
Thursday.....	English 4	.....	.....	Chemistry 15	Chemistry 20 or 21	Chemistry 20 or 21
Friday.....	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Elec. Eng. 52	Chemistry 20 or 21	Chemistry 20 or 21
Saturday.....	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 12	.....	.....

CHEMICAL ENG.

Monday.....	.....	.....	Elec. Eng. 8	Mechan. Eng. 17	Elec. Eng. 32	Elec. Eng. 32
Tuesday.....	Elec. Eng. 8	.....	.....	Elec. Eng. 9	Elec. Eng. 32	Elec. Eng. 32
Wednesday.....	.....	Elec. Eng. 23	Elec. Eng. 8	Mechan. Eng. 17	Mech. Eng. 15	Mech. Eng. 15
Thursday.....	.....	Elec. Eng. 8	.....	Elec. Eng. 9	Mech. Eng. 15	Mech. Eng. 15
Friday.....	.....	Elec. Eng. 24	Elec. Eng. 8	Mechan. Eng. 17	Mech. Eng. 15	Mech. Eng. 15
Saturday.....	Elec. Eng. 13	.....	.....	Elec. Eng. 9	.....	.....

ELECTRICAL ENG.

SENIOR CLASS—SPRING TERM—FOR ALL, FOUR-YEAR COURSES.

DAY.	8-9	9-10	10-11	11-11.50	1.50-2.30	2.30-4
Monday.....	*Zoology 7 or 9	.....	.....	.....	*Horticulture 7	*Horticulture 7
Tuesday.....	*Forestry 3	Agriculture 17	Meteorology 1	.....	.....	.....
Wednesday.....	*Horticulture 8	.....	.....	Agriculture 16	*Horticulture 7	*Horticulture 7
Thursday.....	*Forestry 3 *Zoology 7 or 9	Agriculture 17	Meteorology 1	Agriculture 16	*Forestry 3	*Forestry 3
Friday.....	*Horticulture 8	.....	*Horticulture 7	Agriculture 16	.....	.....
Saturday.....	*Zoology 7 or 9 *Elective.	Agriculture 17	Meteorology 1	.....	.....	.....
MECHANICAL ENG						
Monday.....	Drawing 32	Mechan. Eng. 18	Drawing 32	Mechan. Eng. 18	Mech. Eng. 16	Mech. Eng. 16
Tuesday.....	Drawing 32	Political Science 1	Thesis	Thesis	Mech. Eng. 16	Mech. Eng. 16
Wednesday.....	.....	Political Science 1	Shop-work 11	Shop-work 11	Shop-work 11	Shop-work 11
Thursday.....	Drawing 32	Political Science 1	Drawing 32	Drawing 32	Thesis	Thesis
Friday.....	Political Science 1	Drawing 32	Drawing 32	Mechan. Eng. 18	Thesis	Thesis
Saturday.....	Drawing 32	Political Science 1	.....	.....	.....	.....

CHEMICAL ENG.

Monday.....	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21
Tuesday.....	.....	Political Science 1	English 5	Chemistry 16
Wednesday.....	.....	Political Science 1	.....	Chemistry 20 or 21
Thursday.....	.....	Political Science 1	English 5	Chemistry 16
Friday.....	.....	Political Science 1	Chemistry 19	Chemistry 19
Saturday.....	.....	Political Science 1	.....	Chemistry 12

ELECTRICAL ENG.

Monday.....	Elec. Eng. 10 & 25	Elec. Eng. 10 & 25	.....	Mech. Eng. 16	Mech. Eng. 16
Tuesday.....	Political Science 1	.....	.....	Mech. Eng. 16	Mech. Eng. 16
Wednesday.....	Political Science 1	.....	.....	Elec. Eng. 17	Elec. Eng. 17
Thursday.....	Political Science 1	Thesis	Thesis	Elec. Eng. 17	Elec. Eng. 17
Friday.....	Political Science 1	Thesis	Thesis	Thesis	Thesis
Saturday.....	Political Science 1	Mechan. Eng. 18	.....	.....	.....

GENERAL COURSE—SENIOR YEAR.

Fall	Day.	8-9	9-10	10-11	11-12	1.30-4
	Monday .....	.....	.....	French 7	History 10	Botany 5 Drawing 38 Geology 2 Spanish 1 Zoology 11
	Tuesday	Elec. Eng. 61	Political Sci. 2 & 3	Philosophy 11	Philosophy 3 History 10	Botany 5 Drawing 38 Spanish 1 Zoology 11
	Wednesday	German 7	Political Sci. 2 & 3	French 7	.....	Botany 5 Drawing 38 Spanish 1 Zoology 11
	Thursday	Elec. Eng. 61	Political Sci. 2 & 3	Philosophy 11	Philosophy 3	Zoology 11
	Friday	German 7 Geology 2	Geology 2	French 7	Philosophy 3 Political Sci. 2 & 3	History 10
	Saturday	Geology 2	Political Sci. 2 & 3	Philosophy 11	Philosophy 3 Elec. Eng. 61	.....

Winter	Monday .....	.....	Mathematics 6	French 8	Zoology 6 or 17	Botany 6 Drawing 39 Spanish 2 Zoology 12
	Tuesday .....	.....	Philosophy 4	Political Sci. 4 or 6	English 8	Botany 6 Drawing 39 Spanish 2 Zoology 12
	Wednesday	German 8	Mathematics 10	French 8	Zoology 6 or 17	Botany 6 Drawing 39 Spanish 2 Zoology 12
	Thursday .....	.....	Philosophy 4	Political Sci. 4 or 6	English 8	.....
	Friday	German 8	Mathematics 10	French 8	Zoology 6 or 17	Mathematics 6
	Saturday .....	.....	Philosophy 4	Political Sci. 4 or 6	English 8	.....

GENERAL COURSE—SENIOR YEAR.

Spring.....	Monday.....	Zoology 7 or 9	French 9	Mathematics 11	English 9	Botany 7 Drawing 40 Spanish 3 Zoology 13
	Tuesday.....	Philosophy 10	.....	Meteorology 1	Political Sci 5 or 7	Botany 7 Drawing 40 Spanish 3 Zoology 13
	Wednesday.....	German 9	French 9	Mathematics 11	English 9	Botany 7 Drawing 40 Spanish 3 Zoology 13
	Thursday.....	Zoology 7 or 9 Philosophy 10	.....	Meteorology 1	Political Sci 5 or 7	.....
	Friday.....	German 9	French 9	Mathematics 11	English 9	.....
	Saturday.....	Zoology 7 or 9 Philosophy 10	.....	Meteorology 1	Political Sci 5 or 7	.....

TWO-YEAR COURSE IN AGRICULTURE.

This course was established by the Legislature in 1895. Its aim is to provide an opportunity for those students whose circumstances are such that it would be impossible for them to take a four year collegiate course in agriculture, but yet who are anxious and would be greatly benefited by taking a less extended training for their life work.

The course is especially desirable for the young, bright boys of the farm who expect to make a business of some line of agricultural or horticultural work. The course of study is in part the same as that which the students of the long course take. As thorough instruction is given in agronomy, animal industry, dairying, horticulture, forestry, economic entomology, botany and the underlying sciences as the time will permit. The second year contains optional work, so that it is possible for students to specialize in horticulture, animal industry or dairying.

Ten hours per week on the average are spent in practical work upon the farm, in the barn, greenhouses or shops.

The course is open to "students who can pass a fair and reasonable examination in reading, spelling, writing, arithmetic, English grammar, geography and history of the United States."

For those who do not bring certificates to show their proficiency in these subjects an entrance examination in geography, arithmetic, English and United States history will be given on Tuesday afternoon and Wednesday morning of the opening week of school.

No degree is given on the completion of this course, but a certificate is issued stating fully the work done.

COURSE OF STUDY FOR FIRST YEAR OF TWO-YEAR
COURSE.

FALL TERM.

	Exercises per week.
*Mathematics 12.....	2
English 11 and 1.....	5
Botany 1.....	3
*Zoölogy 14.....	3
Horticulture 1.....	1
Agriculture 1.....	3
Agriculture 18.....	3
Military Science.....	1
Military Drill.....	1

WINTER TERM.

Mathematics 13.....	3
English 2.....	2
Shop Work 12.....	2
Zoölogy 15.....	5
Botany 2.....	3
Horticulture 3.....	3
Military Science.....	1
Military Drill.....	1

SPRING TERM.

English 3.....	1
Physics 41.....	3
Botany 3.....	3
Dairying 7 and 3.....	5
Zoölogy 3.....	4
Chemistry 22.....	3
Military Science.....	1
Military Drill.....	1
*Mathematics 12 begins Oct. 14 after which Zoölogy 14.	

COURSE OF STUDY FOR SECOND YEAR OF TWO-YEAR
COURSE.

FALL TERM.

Exercises per week.

Dairying 4.....	3
Botany 4.....	3
Horticulture 2.....	1
Horticulture 4.....	3
Physics 42.....	3
Agriculture 19.....	3
Agriculture 2.....	3
Military Science.....	1
Military Drill.....	1

WINTER TERM.

{ *Agriculture 21 or.....	2
{ *Dairying 2.....	3
Agriculture 3.....	3
Agriculture 5.....	3
{ *Agriculture 10 or.....	
{ *Horticulture 6.....	3
Forestry 1.....	3
Agriculture 11.....	4
Military Science.....	1
Military Drill.....	1

SPRING TERM.

Shop Work 13.....	2
Horticulture 2.....	2
Horticulture 5.....	3
Agriculture 12.....	3
Agriculture 4.....	3
Agriculture 13.....	4
Agriculture 20.....	3
Military Science.....	1
Military drill.....	1

*Elective.

SCHEDULE OF HOURS FOR TWO-YEAR COURSE.

FIRST YEAR—FALL TERM.

DAY.	8-9	9-10	10-11	11-12	1.30-2.30	2.30-4
Monday.....	Agriculture 1	Agriculture 1 *Zoology 14	Agriculture 18	Drill	Horticulture 1	Horticulture
Tuesday.....	English 10	*Mathematics 12	Military Science	Agriculture 18	Botany 1	Botany 1
Wednesday.....	English 1	Agriculture 1	*Zoology 14	Zoology 14	Botany 1	Botany 1
Thursday.....	English 10	Botany 1		Military Science	Zoology 14	Zoology 14
Friday.....	English 1	*Zoology 14 *Zoology 14	Agriculture 1	Drill	Agriculture 18	Agriculture 18
Saturday.....	English 10	*Mathematics 12	* Elective.	.....	.....	.....

WINTER TERM.

DAY.	8-9	9-10	10-11	11-12	1.30-2.30	2.30-4
Monday.....	Shop-work 12	Shop-work 12	Shop-work 12	Shop-work 12	Shop-work 12	Shop-work 12
Tuesday.....	Zoology 15	Mathematics 13	Drill	.....	Botany 2	Botany 2
Wednesday.....	English 2	Horticulture 3	Zoology 15	Zoology 15	Horticulture 3	Horticulture 3
Thursday.....	.....	Mathematics 13	Drill	Botany 2	Zoology 15	Zoology 15
Friday.....	English 2	Military Science	Zoology 15	Zoology 15	Horticulture 3	Horticulture 3
Saturday.....	.....	Mathematics 13	Botany 2	Botany 2	.....	.....

SPRING TERM.

Monday.....	Dairying 7 & 3	Dairying 7 & 3	Dairying 7 & 3	Drill	Zoology 3	Zoology 3
Tuesday.....	Dairying 7 & 3	Botany 3	Physics 14	Chemistry 22	Botany 3	Botany 3
Wednesday.....	Dairying 7 & 3	Dairying 7 & 3	Dairying 7 & 3	Physics 14	Zoology 3	Zoology 3
Thursday.....	Dairying 7 & 3	Dairying 7 & 3	Zoology 3	Chemistry 22	.....	.....
Friday.....	Military Science	English 3	Physics 14	Drill	.....	.....
Saturday.....	Dairying 7 & 3	Botany 3	Botany 3	Chemistry 22	.....	.....

SCHEDULE OF HOURS FOR TWO-YEAR COURSE.

SECOND YEAR—FALL TERM.

DAY.	8-9	9-10	10-11	11-12	1.30-2.30	2.30-4
Monday.....	Dairying 4	Dairying 4	Horticulture 4	Drill	Agriculture 2	Agriculture 2
Tuesday.....	Agriculture 19	Botany	Botany 4	Agriculture 2	Horticulture 4	Horticulture 4
Wednesday.....	Agriculture 19	Physics 15	Physics 15	Agriculture 2	Horticulture 4	Horticulture 4
Thursday.....	Dairying 4	Dairying 4	Botany 4	Physics 15	Agriculture 19	Agriculture 19
Friday.....	Botany 4	Botany 4	Military Science	Drill	Horticulture 2	Horticulture 2
Saturday.....	Dairying 4	Dairying 4	Dairying 4	.....	.....	.....

WINTER TERM.

Monday.....	Dairying 2	Dairying 2	Dairying 2	Agriculture 11	Agriculture 3	Agriculture 3
Tuesday.....	.....	Agriculture 10	Forestry 1	Drill	Agriculture 11	.....
Wednesday.....	.....	Agriculture 5	Agriculture 3	Agriculture 11	Forestry 1	Forestry 1
Thursday.....	.....	Agriculture 10	Forestry 1	Drill	.....	Dairying 2
Friday.....	Military Science	Agriculture 5	Agriculture 3	Agriculture 11	Agriculture 10	Agriculture 10
Saturday.....	.....	Agriculture 5	Dairying 2	Dairying 2	.....	.....

SPRING TERM.

Monday.....	Agriculture 3	Horticulture 2	Horticulture 2	Drill	Horticulture 5	Horticulture 5
Tuesday.....	Shop-work 13	Shop-work 13	Agriculture 20	Agriculture 4	Horticulture 2	Horticulture 2
Wednesday.....	Agriculture 13	.....	Agriculture 20	Agriculture 20	Shop-work 13	Shop-work 13
Thursday.....	Agriculture 12	Horticulture 5	.....	Agriculture 13	Agriculture 4	Agriculture 4
Friday.....	Agriculture 12	Military Science	Agriculture 20	Drill	Horticulture 5	Horticulture 5
Saturday.....	Agriculture 12	Agriculture 13	Agriculture 13	Agriculture 4	.....	.....

TEN-WEEKS COURSE IN AGRICULTURE.

The college offers a Winter Course in Agriculture, beginning Tuesday, January 8, and continuing until Friday, March 15, 1906.

No entrance examinations are required for this course, but students taking it must possess a good common school education. The course is especially desirable for students of mature years who can find the time to come from the farm during the winter and study some of the principles of agricultural science.

The courses of study offered are dairying, stock feeding, principles of breeding, veterinary elements, poultry, breeds of dairy cattle, greenhouse management, forestry, soil physics, botany and entomology, together with practical work in the creamery, forge, wood and machine shops and greenhouses.

Since the hours of study for the above named courses are scheduled on other pages of the catalogue, they are not repeated here in a separate schedule. Those contemplating taking the course should decide what studies they wish to pursue and then make out a schedule of hours for themselves.

A fee of \$5 is charged for tuition.

The expenses of the course may be estimated as follows:

Room and board, 10 weeks at \$4.....	\$40.00
Tuition fee.....	5.00
Books	5.00

Total	\$50.00
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Applicants should report at the president's office in Thompson Hall on Tuesday, January 8, 1906.

TEN-WEEKS COURSE IN DAIRYING OR DAIRY SCHOOL.

The eleventh annual Dairy School of the New Hampshire College of Agriculture and the Mechanic Arts will open on Tuesday, January 8, and continue 10 weeks. The object of this school is to furnish a broad and substantial foundation for those who would become successful creamery managers or dairy farmers. It offers a short route to a successful career that must otherwise require years of experience to attain. The subjects taught have a practical bearing on the every-day affairs connected with the various branches of the dairy industry.

TUITION, EXPENSES, ETC.

There is no age limit for students, and no entrance examination is required. A tuition fee of five dollars is payable at the beginning of the term; other expenses, including books, room and board for 10 weeks will amount to approximately sixty dollars.

Owing to the limited space for class work in the dairy building, the number of students must necessarily be limited to the men who first make application for admission.

A detailed description of the studies offered is here given.

Students completing the required work of the Dairy School and passing satisfactory examinations in all subjects will be given a certificate.

DAIRY BUILDING AND EQUIPMENT.

The dairy building is a wooden structure of one and one-half stories with basement. It is divided into rooms for

testing, separating and churning. There is also an engine room and an office for the dairy instructor.

All available space is occupied by the various forms of separators, milk testers, milk coolers, churns, butter-workers, etc. Dairy students are taught to use all the latest and best appliances obtainable. Steam power is supplied by the large boilers at the power house. In addition to the product of the college herd, milk and cream are received from about thirty farms in Durham and vicinity. Through this arrangement the college furnishes plenty of milk for practice work, and provides for a complete and practical training in creamery and dairy management.

MILK AND ITS PRODUCT.

Prof. F. W. Taylor.

Lectures and recitations on the secretion, nature and composition of milk, its uses and value as an article of food. It also deals with causes and conditions influencing the quality of milk and the care of milk on the farm.

Class-room work is supplemented by daily practice in the creamery. The student is trained to perform all parts of the work and to thoroughly understand the details that make possible the production of fine butter.

The student will study the construction, operation and care of the various appliances used in the dairy or creamery, and will be required to take apart and assemble the various machines, operate them carefully and efficiently, and present a written description of each machine and the result of his investigations with special reference to capacity, speed and efficiency. Plans of dairy and creamery buildings, with estimates for building will be required.

MILK TESTING.

Mr. F. A. Tinkham.

The use of the Babcock test in apportioning the money value of milk is now regulated by state law and the value of

the test in the successful management of the dairy herd has created a demand for practical training. The course will include lectures and recitations on the principles of the Babcock test and its application on the dairy farm and in the creamery or milk inspector's laboratory. A careful study of all its details will be required. Under the guidance of the instructor the student will practice testing milk, cream, skim-milk and buttermilk until fully competent to perform the work for himself or for others. In connection with the lactometer the test will be made the subject of practice in estimating the solids of milk.

CHEMISTRY OF MILK AND BUTTER.

Professor Fred W. Morse.

The subject is taken up in a course of 10 lectures, illustrated by experiments and specimens, and includes the properties and separation of the different constituents of milk, fat, casein, albumen, sugar, etc., the composition of butter and butter-fat and the properties and effects of preservatives.

DAIRY BACTERIOLOGY.

Mr. F. A. Tinkham.

Lectures, recitations and demonstrations, covering the more important facts in the relation of bacteria to dairying, with instruction and practice in pasteurizing milk and cream for market or butter making and in preparing and using cultures in ripening cream.

BOILERS AND ENGINES.

Assistant Professor E. H. Hancock.

Lectures will be given on the construction, operation and care of boilers, motors, steam and gasoline engines. The lectures will be followed by practical demonstrations and practice in the management of the various motive powers. Instruction will also be given in pipe cutting and fitting and other work incidental to the management of a steam plant.

INSECTS AFFECTING CATTLE.

Professor E. Dwight Sanderson.

Lectures on the horn-fly, warble-fly, cattle lice and similar pests, with especial reference to their life histories and methods of combating them.

BREEDS AND BREEDING.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the origin, history, distribution, characteristics, adaptability and standard of excellence of the pedigreed breeds of dairy cattle, with special reference to the selection of breeds and individual animals for the dairy herd.

Lectures and recitations upon the principles of breeding as exhibited through the laws of heredity, variation and selection; methods of breeding, including a discussion of in-breeding, cross-breeding and influence of environment.

Practice in judging the dairy breeds.

FEEDS AND FEEDING.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the composition and digestibility of feeding stuffs; the preservation and preparation of coarse fodders, ensilage; grinding, steaming and cooking food. A careful study of the different feeds upon the market and their value in a dairy feeding ration. Practice will be given in computing and compounding rations for the dairy cow.

DISEASES OF CATTLE.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the anatomy of the cow, with special reference to the digestive, reproductive and milk-producing organs, the common diseases, the causes and the methods of treatment.

AGRICULTURAL EXPERIMENT STATION.

This department of the college is provided for by the National Government. The appropriations for the current year aggregate \$22,000.

The Acts of Congress provides,—

“That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping, as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories.”

COMMENCEMENT, 1906.

On Commencement Day, June 6, 1906, the following degrees were conferred:

BACHELORS OF SCIENCE.

IN AGRICULTURE.

Charles S. Batchelder, South Hampton.
Clarence Elbert Clement, Derry.
Cyrus Fremont Jenness, Gonic.

IN CHEMISTRY.

Stuart Kendrick Barnes, Walpole.
Carl Tilson Fuller, Nashua.
Wallace Fuller Purington, South Yarmouth, Mass.
Edwin Jay Roberts, Laconia.

IN ELECTRICAL ENGINEERING.

Samuel Taylor Adams, Pittsfield.
Neil Starr Franklin, Bernardston, Mass.
William Safford Gooch, Exeter.
Ralph Edward Gowen, Stratham.
Allen Montague Johnson, Nashua.
Charles Leo Tuttle, Exeter.

IN GENERAL COURSE.

William Cassius Campbell, West Windham.
John Dustin Clark, Nashua.
Ernest Luther Converse, Amherst.

IN MECHANICAL ENGINEERING.

Edwin Davis Hardy, Nashua.

Roy Vance Swain, Barrington.

MASTERS OF SCIENCE.

John Leslie Randall, Lee.

William Orrin Robinson, Marlborough.

MECHANICAL ENGINEER.

Lewis H. Kenney, '99, Philadelphia, Pa.

CERTIFICATES.

Certificates from the Two-Year Course in Agriculture were awarded to—

Alfred Walker Clough, Greenland.

Oliver Carter Dimond, West Concord.

Ralph Wayne Forristall, Alstead.

Stanley Hargreaves, Durham.

Robert Stanley Sawyer, Walpole.

HONORARY DEGREES.

MASTER OF SCIENCE.

Henry C. Morrison, A. M., Concord, State Superintendent of Public Instruction.

BACHELOR OF SCIENCE.

Harry F. Hall, Durham, Instructor in Horticulture and Associate Horticulturist to New Hampshire Agricultural Experiment Station, New Hampshire College.

PRIZE RECORD FOR 1906.

BAILEY PRIZE—\$10.

GIVEN BY DR. C. H. BAILEY OF THE CLASS OF '79, AND E. A.
BAILEY OF THE CLASS OF '85.

STUART KENDRICK BARNES, Walpole.

ERSKINE MASON MEMORIAL PRIZE.

ERNEST LUTHER CONVERSE, Amherst.

SENIOR STANDING HIGHEST IN THE MILITARY
DEPARTMENT.

WILLIS CASSIUS CAMPBELL, West Windham.

WINNER OF INDIVIDUAL PRIZE DRILL.

JAMES WILLIAM TUCKER, '09, Concord.

HONORABLE MENTION.

ABRAM LAWRENCE DEAN, 1st year, 2 year.

PRIZE SWORD—EXCELLENCE IN DRILL.

ANDREW BROGGINI, '07, Concord.

HONORABLE MENTION.

FRANK W. RANDALL, '07, Portsmouth.

COLOR COMPANY—FALL TERM.

COMPANY B.

Valentine Smith Scholarships are held by—

W. W. KIRKPATRICK, '08.	WM. S. CAMPBELL, '09.
J. GLENN POWERS, '07.	E. D. FRENCH, '10.

ROSTER OF BATTALION.

FOR 1906--1907.

COMMANDANT.

FIRST LIEUT. WILLIAM E. HUNT, Eighth U. S. Infantry.

CADET OFFICERS.

MAJ. W. G. MURCHIE.

FIRST LIEUT. AND ADJT. J. T. CROGHAN.

SECOND LIEUT. AND Q. M. L. A. CARLISLE.

SERGT. MAJ. C. F. CONE.

Q. M. SERGT. W. W. EVANS.

COLOR SERGT. R. E. WADLEIGH.

SERGT. SIGNAL CORPS A. H. BARTON.

COMPANY A.

COMPANY B.

CAPT. F. W. RANDALL.

CAPT. A. BROGGINI.

1ST. LIEUT. F. W. WOODMAN 1ST LIEUT. M. C. HUSE.

2ND LIEUT. A. M. BATCHELDER 2ND LIEUT. H. D. WALKER.

FIRST SERGEANTS.

W. L. ADAMS.

L. H. KIMBALL.

SERGEANTS.

G. A. PERLEY.

O. L. FARWELL.

C. D. KENNEDY.

G. L. WAITE.

H. S. TOWNSEND.

C. S. WENDELL.

H. H. WILKINS.

L. L. SMALLEY.

CORPORALS.

W. B. PARKER.	L. A. PRATT.
M. D. MERRILL.	H. L. JENNESS.
R. B. HAMMOND.	C. B. WILKINS.
H. E. WILDER.	P. M. OSGOOD.
W. B. HURLBURT.	A. L. DEAN.
M. H. SANBORN.	E. M. STEVENS.

MUSICIANS.

W. F. LANGEЛИER.	P. R. CROSBY.
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BAND.

1ST LIEUT. L. D. BATCHELOR	CORPORAL M. G. BUSS.
SERGEANT F. CLOUGH.	CORPORAL C. L. WOOD.
SERGEANT S. F. HILL.	CORPORAL O. D. GOODWIN.
CORPORAL P. F. ELLSWORTH.	

PRINCIPAL MUSICIAN.	DRUM MAJOR.
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P. R. BERRY.	J. W. TUCKER.
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REGISTER OF GRADUATES.

NOTE.—The arrangement is: (a) Name in full. (b) Later degrees taken. (c) Residence at time of entering college. (d) Occupation, etc. (e) Present residence. *Dead. †Present address unknown. Graduates are earnestly requested to inform R. Whoriskey, chairman of the Catalog Committee of any changes that should be made in this list.

DOCTOR OF SCIENCE.

Ned Dearborn, D. Sc, 1901. Curator Field Museum.

Chicago, Ill.

MASTER OF SCIENCE.

Alfred Conradi, M. S., 1902. B. Sc (Ag) '01, O. S. U. Prof. of Zoology; State Entomologist and Entomologist. Experiment Station.

College Station, Texas.

John I. Randall, M. S. 1906. See class of 1905.

William O. Robinson, M. S., 1906. Mechanical Engineer. See class of 1905.

Lewis H. Kenney, M. E., 1906. See class of 1899.

BACHELORS OF SCIENCE.

1871.

William Preston Ballard, Concord. Farmer.

R. F. D., Route 1, Concord.

Lewis Perkins, Hampton. Retired.

Hampton, N. H.

Charles Henry Sanders, Penacook. Merchant.

Main Street, Penacook.

3—

1872.

Edwin Bartlett, Bath. Ranchman and Stock Raiser.

Spearville, Ford Co., Kansas.

Frank Alexander White, Bow. Surveyor, Farmer.

Route 4, Concord.

2—

1873.

†Frederick Erasmus Eldredge, Kensington.

James Fred Smith, A. B., A. M. (Dartmouth, 1885; A. M., Stanford, 1900). Principal of High School.

43 McCoy Avenue, Campbell, Cal.

Charles Henry Tucker, Plaistow. Carriage Woodworker.

24 Highland Street, Amesbury, Mass.

3—

1874.

Millard Fillmore Hardy, Rev., Nelson. Graduated Theo. Inst., Ct., 1878. Clergyman. *East Jaffrey, N. H.*

*Henry Abbott Sawyer, North Weare.

2—*1

1875.

Walton Herman Aldrich, M. D. (Univ. N. Y. City, 1880), Troy. Physician and Surgeon. *Marlborough.*†Frank Pierce Curtis. Grocer. *Fitchburg, Mass.*Frank Veranus Emerson, Lebanon. Manager Emerson & Edge Tool Company Works. *Water St., East Lebanon.*

Charles Webster Hardy, M. D. (Mo. Med. Coll., 1881), Marlborough. Physician.

206 So. Main Street, Ottawa, Kansas.

Harvey Jewell, Winchester. Fruit Grower and Poultryman.

R. F. D., Cromwell, Conn.

*Charles Ormille Leavitt, Lebanon.

*John Loney McGregor, D. D. S. (Phila. Dental Coll., 1877), M. D. (Dartmouth, 1883), Whitefield.

Eliel Peck, Lebanon, Postmaster.

Kimball, Stearns County, Minn.

Ira William Ramsey, Walpole.

Walpole.

Orlando Leslie Seward, Keene. Artist.

*287 Church Street, Keene.*Emery Mason Willard, Harrisville. Druggist, 15 Union Street, Boston, Mass. *109 Hewlett Street, Roslindale, Mass.*

11—*2

1876.

Herbert Cyril Aldrich, Troy. Insurance and Real Estate.

329 West 4th St., Los Angeles, California.

†Edmund Lawson Brigham, Jaffrey. Mechanic.

Joseph Warren Butterfield, Westmoreland. Farmer.

North Montpelier, Vt.

Arthur French Chamberlain, Westmoreland. Partner of Edson Keith & Co., 132 Michigan Avenue, Chicago, Ill.

6542 Kimbark Avenue, Chicago, Ill.

Anson Ballard Cross, Holyoke, Mass. Contractor and Builder of Railroads.

Main St., Wilmington, Vt.

Warren Webster Kimball, Troy. Merchant.

Troy.

Daniel Deeth Parker, Fitzwilliam. With Heywood Bros. & Wakefield Co.

Box 56, Gardner, Mass.

7—

1877.

Rollin Kirk Adair, Indian Territory. Retail Groceries.

Chelsea, Indian Ter.

*Homer Brooks, M. D. (N. Y. Hom. Med. Coll., 1881), Franconia.

John Washington Carson, Mont Vernon. Farmer and Land Surveyor.

Francestown.

*Charles Otto Chubert, Troy.

*Charles Albert Edwards, LL. B. (Univ. of Iowa, 1880), Keene.

*William Francis Flint, Richmond. Land Surveyor, Horticulturist, Forestry Expert.

Winchester.

Clinton Camillus Hall, Westmoreland. Agt. New York Life Ins. Co.

East Westmoreland.

John Goodrich Henry, M. D. (Dartmouth, 1880), Chesterfield. Physician.

15 Pleasant St., Winchendon, Mass.

*Charles Pitkin Hollister, North Montpelier, Vt.

George Mirick Holman, M. D., Fitchburg, Mass., Teacher.

334 Boylston St., Boston, Mass.

Charles Appleton Hubbard, Troy. Treasurer United Fruit Company.

Board of Trade Building, 131 State Street, Boston, Mass.

Carlos Augustus Wheeler, East Calais, Vt. Bee Keeper and Farmer.

Bracken, Comal Co., Texas.

Everard Whittemore, Fitzwilliam. Insurance and Real Estate.

14 River Street, Hudson, Mass.

13—*5

1878.

†Ezra Eastman Adams, Manchester.

*Elmer Kilburn, Marlow.

Charles Edward Record, Fitchburg, Mass. Contractor and Builder. (Greenhouses a specialty.)

73 Green Street, Leominster, Mass.

3—*1

1879.

Charles Hardy Bailey, M. D. (Dartmouth, 1881). Physician.

39 East Broadway, Gardner, Mass., Station A.

Richard Clinton Chapin, Chicopee, Mass. With American
Writing Paper Company. *Holyoke, Mass.*

Lucius M. Cragin, Lempster. Farmer.

The Elms, Springfield, Vt.

*Nathaniel Cutler Holmes, Jaffrey.

Fred Charles Park, Lempster. Traveling Salesman.

6 Essex Street, Concord.

George Henry Wilkins, M. D. (N. Y. Hom. Med. Coll., 1883),
Amherst. Physician.

324 Walnut Street, Newton (Newtonville P. O.), Mass.

6—*1

1880.

Charles Harvey Hood, Derry. Milk Business.

2 Benton Road, Somerville, Mass.

1—

1881.

Edwin Thompson Aldrich, Troy. General Insurance Agent.

Bridgman's Block, Keene.

Henry Lyman Barnard, Troy. Clerk.

Troy.

*George Jordan Boardman, Lawrence, Mass.

Edwin Franklin Bristol, Harwinton, Conn. Miller and Farmer.

Ascutneyville, Vt.

Artemas Terald Burleigh. Farmer.

Franklin.

Frank Dana Ely, Cavendish, Vt. With Vermont Marble Com-
pany, Electrician.

Proctor, Vt.

Sanford Eugene Emery, LL. B. (Albany Law School, 1886),
Proctorsville, Vt. Attorney-at-Law.

Proctorsville, Vt.

Charles Herbert Hazen, Hartford, Vt. Farmer and Market
Gardener.

Bethlehem.

Frank P. Marston, Hartford, Vt. Investments.

46 Main Street, Hudson, Mass.

William Augustus Megrath, M. D. (Dartmouth, 1886), Cavendish,
Vt. Physician.

Loudon.

Fred Townsend Stanton, Strafford. Farmer.

R. F. D. No. 1, Rochester, N. H.

Victor Hugo Stickney, M. D. (Dartmouth, 1883), Tyson, Vt.
Physician and Surgeon.

Dickinson, N. Dakota.

Samuel Austin Wallace, Ph. G. (Boston School of Pharmacy,
1886), West Hartford, Vt. Druggist.

Crookston, Minn.

George Herbert Whitcher, Strafford. Director of the New Hampshire Agricultural Experiment Station, February 22, 1888, to November 1, 1894; Professor of Agriculture of the New Hampshire College, June, 1887, to November 1, 1894. District Superintendent of Schools, August 1, 1900.

Berlin.

14—*1

1882.

Harvey Lincoln Boutwell, LL. B. (Boston University, 1886), Hopkinton. Attorney-at-Law, 209 Washington Street, Boston, Mass.

37 Pierce Street, Malden, Mass.

Dana Justin Bugbee, North Pomfret, Vt. Mining in Colorado.

North Pomfret, Vt.

Robert Fletcher Burleigh, M. D. (Dartmouth, 1887), Franklin. Physician.

1010 Washington St., South Braintree, Mass.

La Forrest John Carpenter, Surry. Farmer.

R. F. D. No. 1, Shirley, Mass.

Edwin Preston Dewey, Hanover. Secretary and Manager, Harbor Iron Works.

237 Olive Avenue, Long Beach, Cal.

George Andrew Loveland, LL. B. (University of New York, 1886), Norwich, Vt. Section Director United States Weather Bureau.

Care Weather Bureau, Lincoln, Neb.

†John Wright Mason, Hanover.

Harlan Addison Nichols, Derry. Physician.

Clint (El Paso Co.), Texas.

*Frank Elmer Thompson, Stark.

9—*1

1883.

†Elmore Ferdinand Arnold, M. D. (University City of New York, 1885.) Londonderry, Vt. Physician.

New York, N. Y.

Frank Landor Bigelow, Proctorsville, Vt. Instructor in Mathematics and Sciences, Goddard Seminary, Barre, Vt., 1883-1886. Business.

Rutland, Vt.

Frederick Stocks Birtwhistle, Troy. President and Manager, Raleigh Construction Co.

33 Fayetteville St., Raleigh, North Carolina.

Noice D. Bristol, Harwinton, Conn. Scenic Photographer.

2667 Medary Ave., Columbus, Ohio.

Frederick Plummer Comings, Lee. Trustee New Hampshire College, 1893-1903.

Lee.

Frank Harry Follansbee, Canaan. Railway Postal Clerk.

41 Sharon Street, West Medford, Mass.

Adams Clark French, M. D., D. O., Franklin Falls. Physician.

231 So. Hayne Street, Chicago, Ill.

James Edgar Gay, Tunbridge, Vt. Woolen Manufacturer.

Cavendish, Vt.

Elmer Daniel Kelley, Franklin Falls. Farmer and Business.

445 Central Street, Franklin Falls.

Alvah Benjamin Morgan, Canaan. Pharmacist.

Woodstock, Vt.

William Lincoln Whittier, Deerfield. Foreman of Machine Shop.

121 Rantoul Street, Beverly, Mass.

Charles Minot Woodward, Hanover. Teacher, Public Schools.

1620 College Avenue, Fort Worth, Texas.

12—

1884.

*Ernest Smith Cummings, Lee.

Fred Carlos Davis, South Reading, Vt. Lawyer and Civil Engineer.

South St., Springfield, Vt.

Sylvester Miller Foster, Riverhead, N. Y. Cashier Riverhead Bank, and Coal Dealer.

Riverhead, Suffolk County, N. Y.

Herbert Harvey Kimball, M. S. (Columbian University, 1900), Hopkinton. Librarian and Climatologist, U. S. Weather Bureau.

Washington, D. C.

Moses Bisbee Mann, Benton. Inspector of Customs.

Custom House, Boston, Mass.

George Milton Moore, Plymouth, Vt. In private business.

Ludlow, Vt.

Ziba Amherst Norris, Lyme. Dealer in Groceries and Provisions, Wholesale and Retail, Dorchester and Cohasset.

587-593 Washington Street, Dorchester.

Edwin Chapin Thompson, Lee. Section Director U. S. Weather Bureau.

U. S. Weather Bureau, San Juan, P. R.

8—*1

1885.

George Ellsworth Adams, Weston, Vt. Merchant.

Vernal, Utah.

Ruel Seabury Alden, Lyme. Superintendent of College Farm, 1895-'97. Farm Superintendent.

Box 173, North Uxbridge, Mass.

Walter Eugene Angier, C. E. (Dartmouth, 1887), West Swanzey. Civil Engineer.

Office, 1750 Monadnock Block, Chicago, Ill.

Edward Alonzo Bailey, West Swanzey. Chair Maker.

55 Pine Street, Keene.

†Phillips Greenleaf Bickford, Lyme.

Andrew Walter Brill, Riverhead, L. I. Clerk North British and
Mercantile Fire Insurance Company, 76 William Street, New
York City. *Hempstead, N. Y.*

†Paul Cuff Brooks, Boston, Mass.

†Frank Jay Emerson, Epping.

Allen Hazen, Wilder, Vt. Consulting Engineer.

St. Paul's Building, 220 Broadway, N. Y.

George Mayo Mullins, Londonderry. Attorney-at-Law.

Fourth and Jefferson Streets, Papillon, Neb.

Albert Henry Wood, Lebanon. Associate Professor of Agriculture,
1890-'94. Grain Merchant. *Framingham, Mass.*

11—

1886.

Frank Albert Davis, M. B., M. D. (Boston University School of
Medicine, 1897, 1898), South Lee. Physician.

Hotel Buckminster, Commonwealth Ave. and Beacon Sts., Boston, Mass.

James Ellsworth Harvey, Surry. Photographer.

51 North Main St., Concord, N. H.

Belezar Stoianoff Ruevsky, Tirnovo, Bulgarie. Maitre au Gym-
nase de garcon du Gouvernement, Tirnovo, Bulgaria.

Termoro, Bulgaria.

Madison Templeton Thurber, M. D. (Dartmouth, 1890), Webster.
Physician. *85 Savin Hill Avenue, Boston, Mass.*

Edward Hills Wason, New Boston. Attorney-at-Law.

Odd Fellows' Building, Nashua.

George Pillsbury Wood, Lebanon. Draftsman in charge, Bureau
of Yards and Docks, Navy Department.

3407 Holmead Place, N. W., Washington, D. C.

6—

1887.

William Sprague Currier, Norwich, Vt. Local Forecaster U. S.
Weather Bureau. *1631 Nicholas Bldg., Toledo, Ohio.*

Arthur Woodbury Hardy, C. E. (Dartmouth, 1889), Hopkinton.
Manager Western Sprinkler Risk Association.

240 La Salle Street, Chicago, Ill.

George Albert Sanborn, Rochester. Salesman.

34 Pine Street, Rochester.

Hiram Newton Savage, C. E. (Dartmouth), White River Junction,
Vt. Member Am. Soc. C. E.; Supervising and Consulting
Engineer, U. S. Reclamation Service. *Huntley, Montana.*

Bion Leland Waldron, Strafford. Official in charge U. S. Weather
Bureau. *Government Bldg., Hannibal, Missouri.*

5—

1888.

*Melvin Burnside Carr, North Haverhill. Civil Engineer, B. E. Ry. Co. *28 North Street, Medford, Mass.*

Herbert Grant Davis, South Lee. General Manager Sea View Railroad Company and Narragansett Pier Electric Light & Power Company. *Narragansett Pier, R. I.*

Edwin Chandler Gerrish, Webster. Assistant Paymaster for Proprietors of the Locks and Canals on Merrimack River. *66 Broadway, Lowell, Mass.*

†William Nelson Hazen, C. E. (Dartmouth, 1890). Chief Draftsman for the Structural Iron and Steel Co., Bush Street and B. & O. R. R. *Pittsburg, Penn.*

Edward David O'Gara, Hanover. Farmer. *Hanover.*

George Elmer Porter, M. D. (Dartmouth, 1892), Hartford, Vt. Physician. *Marengo, Wayne Co., N. Y.*

George Jonathan Sargent, Canterbury. Civil Engineer and Contractor. *Canterbury.*

John Warren Smith, M. S. (1900), Grafton. Section Director U. S. Weather Bureau.

16 East Broad Street, Columbus, Ohio.

George Elwin Walker, Littleton. Farmer. *Littleton.*

8—*1

1889.

Fred Harvey Colby, Hopkinton. Fruit Grower.

Prosser, Wash.

†Linwood Carroll Gillis.

*Louis Jerome Hutchinson, Norwich, Vt.

John Lawrence Norris, Lyme. Norris Brothers, Groceries and Provisions, 1673-1679 Washington Street, Boston; 529-535 Dudley Street, Roxbury; and 587-593 Washington Street, Dorchester, Mass. President of the Dairy Association Company, Lyndonville, Vt.; Secretary and Treasurer of Photo Fabric Company of America.

6 Worcester Square, Boston, Mass.

Charles Walter Earl Scott, Winchester. Mechanic.

Darrington, Wash.

David Elmer Stone, Hartford, Vt. Grain Merchant.

Framingham Center, Mass.

Fred Washburne, West Springfield. With Sargent & Co., Foreman of Foundry Department.

56 Carmel Street, New Haven, Conn.

7—*1

1890.

John Young Jewett, C. E. (Dartmouth, 1895), Gilford. Cement Expert, U. S. Reclamation Service.

Chamber of Commerce Bldg., Denver, Colo.

†Joseph Franklin Preston, Hanover. Clerk. *Boston, Mass.*

Elihu Quinby Sanborn, Webster. Machinist. *Contoocook.*

Clarence Ira Slack, Norwich, Vt. Cashier.

51 North Market Street, Boston, Mass.

4—

1891.

Ernest Gowell Cole, Hampton. Postmaster and Merchant.

Hampton.

Russell Marden Everett, Chester. Patent Lawyer and Solicitor.

788 Broad Street, Newark, N. J.

Edward Payson Stone, Canaan Center. Farmer. *Orford.*

3—

1892.

Percey Lovejoy Barker, C. E. (Dartmouth, 1894), Milford. Supervisor of Bridges and Buildings, N. Y. C. & H. R. R. R.

Jersey Shore, Penn.

Fred Driggs Fuller, Hanover. Chemist, Pennsylvania Department of Agriculture.

2 N. Court Ave., Harrisburg, Pa.

Arthur Benezette Hough, Lebanon. Dairy Farmer. *Lebanon.*

†Edward Monroe Stone, C. E. (Dartmouth, 1894), Marlborough. Civil Engineer with Henry A. Wolcott.

4—

1893.

Wilton Everett Britton, Ph. D. (Yale, 1903), Keene. State Entomologist and Entomologist of the Connecticut Agricultural Experiment Station and Lecturer Yale University.

296 McKinley Ave., New Haven, Conn.

Frank John Bryant, Enfield. Postoffice Clerk. *Lebanon.*

Charles Elbert Hewitt, M. M. E. (Cornell, 1895), Hanover. Electrical Engineer and Contractor.

13-21 Park Row Building, New York City.

Charles Lincoln Hubbard, M. E. (1895), Fitzwilliam. Consulting Engineer.

551 Boylston St., Boston, Mass.

Orrin Moses James, Northwood. State Highway Department.

Northwood Narrows.

Arthur Whitmore Smith, M. Sc., Ph. D., Norwich, Vt. Assistant Professor of Physics, University of Michigan.

1008 Oakland Ave., Ann Arbor, Mich.

6—

1894.

Bert Sargent Brown, Hanover. Farmer. *Hanover.*

Fred Willis Gunn, Keene. Machinist.

18 Huron St., Providence, R. I.

Frederic William Howe, Hollis. Professor of Chemistry, Food and Dietetics, State Normal School, Framingham, Mass., Scientific Director Walker Gordon Laboratory Co., and Director of Food Laboratory, Boston Floating Hospital.

793 Boylston Street, Boston, Mass.

3—

1895.

Frank Stanley Adams, Gilsum. In office Vermont Farm Machine Company.

35 Atkinson St., Bellows Falls, Vt.

Frank Clifton Britton, Keene. With the Sullivan Machinery Company of Claremont and Chicago (Cost-accounting Department).

7 Prospect Street, Claremont.

†Henry Elmer Hill, Plainfield, Vt. With the Arizona Lumber Company.

Charles Arthur Trow, Mont Vernon. Chief Engineer in construction of Uba Railroad.

602 Rialto Bldg., San Francisco, Cal.

4—

1896.

Lewis Harris Kittredge, Keene. President the Peerless Motor Car Company.

Quincy Ave. and 93d St., S. E., Cleveland, Ohio.

1—

1897.

Harlan Winifred Barney, Grafton. Business.

112 Myrtle Street, Manchester.

Carrie Augustus Bartlett, Lee. Teacher. *Route 1, Newmarket.*

Mary Blaisdell Bartlett, Epping. Teacher in Biology, Concord High School.

99 North State St., Concord, N. H.

Walter French Buck, Manchester. Teacher, Milton Academy, Milton, Mass.

Arthur Willard Colburn, Dracut, Mass. Farmer. *Dracut, Mass.*

Carrie Lydia Comings, Durham. Teacher, Beverly High School.

78 Essex Street, Beverly, Mass.

Irving Lyford Dennett. Steam Engineer, Corn Products Refining Company.

Hudson Heights, N. J.

*Mary Elizabeth Comings (Mrs. I. L. Dennett), Durham.

Elwin Henry Forristall, M. Sc. (1900, Columbia), Supt. Mass. Agricultural Coll. Farm.

Amherst, Mass.

- Leslie David Hayes, Durham. Instructor of Manual Training,
Rayen School. *350 Arlington St., Youngstown, Ohio.*
- John Norton Hunt, Peterborough. *Peterborough.*
- Ellery Dunbar Jenkins, Lee. Chemist, Lowell Fertilizer Com-
pany. *P. O. Box 105, Lowell, Mass.*
- Woodruff Mason, Stamford, Conn. *Balenville, N. Y.*
- Roscoe Hart Shaw, Milton. Dairy Expert, U. S. Department of
Agriculture. *University of Missouri, Columbus, Mo.*
- Charles William Vickery, Dover. With Claflin Brothers, Mining
Engineers. *Nome City, Alaska.*
- Delbert Amos Wheeler, South Ashburnham, Mass. Teacher.
Boston, Mass.
- Everett Sidney Whittemore, Colebrook. Proprietor of North Con-
way Creamery. *North Conway, N. H.*
- 17—*1

1898.

- *Richard Cole Butterfield, Westmoreland.
- Helen Buzzell, Lee. Teacher, Lee, N. H. *R. F. D., 5, Dover.*
- Bernice Elisabeth Caverno (Mrs. E. H. Hancock), Durham.
Durham.
- Burton Albert Corbett, Colebrook. Seed Potato Specialist and
Breeder of Holstein-Friesian Cattle. *Colebrook.*
- Alfred Caverly Durgin, Lee. Farmer and Fruit Grower
R. F. D. Newmarket, N. H.
- James Alfred Foord, Walpole. Associate Professor of Agromony,
Ohio State University. *Columbus, Ohio.*
- John William Fullerton, Somersworth. Paymaster with Great
Falls Woolen Company. *Somersworth.*
- Arthur Given, Durham. Assistant Chemist, U. S. Department of
Agriculture, Bureau of Chemistry.
1937 13th Street, N. W., Washington, D. C.
- Edward Henry Hancock, Belmont. Instructor in Mechanism and
Woodwork, New Hampshire College. *Durham.*
- Mabel Lucy Hayes, Durham. In charge of Commercial Dept. in
High School. *Box 696, Windsor Locks, Conn.*
- Tomokichi Hirokawa, B. S. (Massachusetts Institute of Tech-
nology), Iamabari, Japan. Electrical Engineer, Kyoto Elec-
tric Light Company. *Kyoto, Japan.*
- Harry Clinton Mathes, Newmarket. Inspector Penn., N. Y. &
L. I. R. R. Co. *195 10th St., Long Island City, New York.*
- Herbert Fisher Moore, M. E. (Cornell, 1899), M. M. E. (Cornell,
1903), Penacook. Assistant Professor of Mechanics, Univer-
sity of Wisconsin. Member American Society of Testing
Materials. *209 No. Brooks, Madison, Wis.*

Gerry Austin Morgan, Goffstown. Draftsman with Taft-Pierce Manufacturing Company.

93 Blackstone Street, Woonsocket, R. I.

Harry Putnam Richardson, Milford. With Southern Pacific R. R.
560 10th St., Oakland, Cal.

Fred Dexter Sanborn, Ashland. Paper Box Manufacturer. Publisher of Weekly Newspaper and Mgr. Job Printing Plant.
Ashland.

Fred Webster Smith, Franklin Falls. Southern Selling Agent for Geo. D. Mayo Machine Co. *Pleasant St., Laconia, N. H.*

Benjamin D. Tolles, Somersworth. With Great Falls Manufacturing Company, Department of Carding.

Berwick, Maine.

18—*1

1899.

Henry Clark Baker, South Yarmouth, Mass. San Francisco Manager, Crocker-Wheeler Company.

208 First Street, San Francisco, Cal.

Harry Everett Barnard, Nashua. State Chemist, Laboratory of Hygiene, State House, Indianapolis, Ind.

Harrison Edward Clement, Nashua. Member American Institute Mining Engineers, Mining Engineer. Member of firm Clement & Strange, Engineers and Contractors.

307 Dooley Block, Salt Lake City, Utah.

Irving Atwell Colby, Exeter. With Dominion Coal Co.

Box 208, Sydney, Cape Breton, Nova Scotia.

Willis Daniel Farley Hayden, Hollis. Superintendent Middlebrook Farm. *Dover.*

Frederick Libbey Horton, Dover. Engineering Department General Electric Company.

35 Lovers' Leap Avenue, Lynn, Mass.

William Elmer Hunt, Nashua. First Lieutenant Eighth United States Infantry. Professor of Military Science and Tactics, New Hampshire College. *Durham.*

Lewis Hobart Kenney, M. E., Pownal, Me. Inspecting Draftsman U. S. N., Office of Inspector of Machinery for U. S. Navy, The William Cramp & Sons' Ship and Engine Building Works.

Philadelphia, Pa.

Grace Agnes Mark (Mrs. Herbert F. Moore), Gilsum.

209 No. Brooks St., Madison, Wis.

Arthur Zebulon Norcross, Rindge. Farmer. *Pomfret, Conn.*

Harry Nelson Putney, Franklin. Machinist B. & M. R. R. Shops.
Concord.

Etta Lillian Simpson, Durham. Principal Grammar School.

Acushnet, Mass.

12—

1900.

Herbert Prescott Andrews, Hollis. Engineer, Century Electric Co. *404 North Fourth St., St. Louis, Mo.*

David Burns Bartlett, Manchester. Law Student, Boston University Law School.

Rich Hall, Ashburton Place, Boston, Mass.

Frances Burnham (Mrs. Robert McA. Keown), Durham.

619 Harrison Street, Madison, Wis.

Blanche Mary Foye, Durham. Teacher, French and German.

Concord, Mass.

Charles Elliott Page Mathes. With Birmingham Railway Light & Power Company. *2100 First Ave., Birmingham, Ala.*

Edward Emil Nelson, Nashua. Member of American Institute of Mining Engineers. Engineering and Contracting.

307 Dooley Block, Salt Lake City, Utah.

Alvena Pettee (Mrs. Edward E. Nelson), Durham. Bachelor's Diploma in Domestic Science, Teachers' College, Columbia University, 1903.

The Progress, South 3d St., Salt Lake City, Utah.

Marie Livingstone Robertson (Mrs. Benjamin M. Duggar), Buffalo, N. Y. *809 Virginia Avenue, Columbia, Mo.*

Walter Noah Shipley, Nashua. Steam Turbine Department, General Electric Company. *138 Lakeview Ave., Lynn, Mass.*

Charles Edwin Stillings, Somersworth. With Interborough Rapid Transit Co., New York City.

Sub-Station No. 12, 108 E. 19th St., New York City.

John Ernest Wilson, Hollis. With C. O. D. Electric Works, 638 San Julian Street, Los Angeles, Cal.

Los Angeles, Cal.

Robert Morrill Wright, Hill. Dealer in Flour, Feed, Grain and Hay. *Hill.*

12—

1901.

Henry Harold Calderwood, Nashua. Turbine Assembly Department with General Electric Co.

428 Central Street, Saugus, Mass.

Charles Henry Courser, Warner. Chief Engineer, Wheelwright Paper Mills, Hardwick, Leominster and Fitchburg.

Leominster, Mass.

- Alice Emerson Dorr, Dover. *35 Summer Street, Dover.*
- Harry Willis Evans, Portsmouth. With the Chicago Edison Co.
550 La Salle Avenue, Chicago, Ill.
- Harry Gilbert Farwell, Keene. Engineering Department, General
Electric Company. *403 Summer St., Lynn, Mass.*
- Ella Gertrude Gowen, Dover. Giving Lessons in Cookery.
15 Lexington Street, Dover.
- Charles Almon Hunt, Nashua. Second Lieutenant, Twelfth U. S.
Infantry. *Fort Porter, Buffalo, New York.*
- Edwin Price Jewett, Lakeport. In charge of Prescription Depart-
ment Walker Gordon Laboratory Co.
2112 Michigan Avenue, Chicago, Ill.
- Robert McArdle Keown, Pomona, Fla. Instructor in Machine
Design, University of Wisconsin.
University of Wisconsin, Madison, Wis.
- Elmer Eugene Lyon, Wentworth. Teacher History and Civil
Government, Rugby Academy.
4803 St. Charles Avenue, New Orleans, La.
- George J. Penneo, Hampstead. Farmer. *Hampstead.*
- Harold Morrison Runlett, Durham. Wholesale Shoe Business.
With Clark Hutchinson Co., 121 Duane Street, New York
City.
- Edson Albert Straw. With the A. K. Co. Box Dept. *Ashland.*

13—

1902.

- Mary Doe, (Mrs. Charles H. Ayres), Rollinsford.
404 West 116th St., New York City.
- Edwin W. Gilmartin, Nashua. Engineering Department, General
Electric Company. *132 So. Common St., Lynn, Mass.*
- John C. Kendall, Peterborough. Assistant Professor of Dairy
Husbandry, North Carolina College of Agriculture and Me-
chanic Arts. *West Raleigh, N. C.*
- Harry M. Lee, Moultonborough. Foreman Buena Vista Farm.
Windsor, Vt.
- Abiel A. Livermore, Wilton. Rose Grower with J. A. Budlong
& Son Co. *153 Greenwood St., Auburn, R. I.*
- George E. Merrill, B. Ag. (Cornell University, 1903), Newbury-
port, Mass. Inspector for Gypsy Moth in Department of
Agriculture. *Indian Rock Farm, Hampton Falls.*
- Charles A. Payne, Portsmouth. Engineering Department, Gen-
eral Electric Company. *8 Rhodes Ave., Lynn, Mass.*
- Eugene P. Runlett, Durham. With Williams & Clark, Shoe
Manufacturers, Lynn, Mass.

Arthur L. Sullivan, Suncook. Assistant Chemist, Bureau Internal Revenue, U. S. Treasury Department.

1461 Chapin Street, N. W., Washington, D. C.

9—

1903.

Harry David Batchelor, West Upton, Mass. Chief Chemist, Sharon Coke Works, South Sharon, Pa.

Box 491, Sharon, Pa.

Edgar Forest Bickford, Rochester. Electrical Engineer.

6353 Aurelia Street, Pittsburg, Pa.

Frank Ray Brown, Durham. Instructor, New Hampshire College, Durham.

Everett William Burbeck, Haverhill. Engineer with Oliver Iron Mining Co.

Adams Spruce Mine Office, Eveleth, Minn.

Everett Garfield Davis, Newmarket. Order Dept., E. E. Gray & Co., Wholesale Groceries.

24 Union Park, Boston, Mass.

Albert Noah Otis, Durham. With Ford, Bacon & Davis, Consulting Engineers and Contractors.

24 Broad St., N. Y. City.

806 Gay St., Knoxville, Tenn.

Ralph Harvey Rollins, East Concord. Engineer U. S. Reclamation Service.

Hazen, Nev.

Morris Archer Stewart, Dover. Research Assistant, Massachusetts Institute of Technology, Boston, Mass.

9 Allston Street, Somerville, Mass.

David Albert Watson, Durham. Farming.

R. F. D. No. 1, Durham.

Melvin Johnson White, Farmington. Instructor of American History and Civics in High School.

116 East Johnson Street, Madison, Wis.

10—

1904.

Leander Ashton Pittsfield. Carnation Grower.

High Street, Framingham Center, Mass.

Walter Allen Barker, Pittsfield. Civil Engineering Department, B. & A. R. R.

Room 372, South Station, Boston, Mass.

Edgar Charles Bickford, Durham. B. E. Ry. E. E. Office.

552 Harrison Ave., Boston, Mass.

Percy Anderson Campbell, Litchfield. Assistant, Dept. of Animal Husbandry, University of Maine.

Orono, Maine.

Carroll Winfred Farr, North Weare. Dairy Farmer.

North Weare.

Joseph Ezra Goodrich, New Durham. Instructor of Mathematics and Science, Norwood High School.

39 Cottage St., Norwood, Mass.

George Herbert Hill, La Crosse, Wis. Mechanical Inspector with Chicago, Burlington & Quincy R. R.

C. B. & Q. Laboratory, Aurora, Ill.

Thomas Jefferson Laton, Nashua. Turbine Testing Department, General Electric Company.

428 Central Street, Cliftondale, Mass.

Raymond Louis Lunt, Dover. Telephone Engineer, Western Electric Co.

463 West St., New York City.

Arthur Ronello Merrill, North Bridgton, Me. Instructor in Animal Husbandry and Dairying, Baron de Hirsch Agricultural and Industrial School.

Woodbine, New Jersey.

Samuel Ambrose Richardson, Charlestown. Foreman for G. M. Gest, Conduit Contractor.

277 Broadway, New York City.

1905.

John Henry Chesley, Rockingham. Turbine Testing Department, General Electric Company.

77 Mall Street, West Lynn, Mass.

Cleon Orestes Dodge, Sunapee. Chemist, Sharon Coke Company, Sharon, Pa.

Box 491, Sharon, Pa.

Silas Bryden Hayden, South Natick, Mass. Illinois Steel Company.

506 La Salle Avenue, Chicago, Ill.

Harry Linwood Hayes, Exeter. Construction Force. Boston Office, General Electric Company.

Warren Chauncey Hayes, Durham.

Durham.

Fred Harvey Heath, Warner. Student in Graduate School of Yale University and Asst. in Organic Chemistry in Kent Laboratory.

P. O. Box 712, Yale Station, or 648 E. Divinity Hall, New Haven, Conn.

Harold Nims Knight, Marlborough. Graduate Asst. in Animal Husbandry, Iowa State College.

Station A, Ames, Iowa.

Joseph Wesley Moreton, Medford, Mass. Engineering Department, Westinghouse Electric & Manufacturing Company.

P. O. Box 360, East Pittsburg, Pa.

Orlo Dudley Mudgett, Gilmanton. Testing Department, Westinghouse Electric & Manufacturing Company.

P. O. Box 360, East Pittsburg, Pa.

Horace James Pettee, Durham. Draftsman, Illinois Steel Co.

550 La Salle Avenue, Chicago, Ill.

Arthur Mahlon Pike, Dover. Turbine Dept., General Electric Co., Lynn, Mass.

77 Mall St., West Lynn, Mass.

- Fred Silver Putney, Hopkinton. Assistant in Agriculture.
Box 149, State College, Penn.
- John Leslie Randall, M. S., Lee. Sub-Master High School, Principal Evening School. *62 Prescott St., Clinton, Mass.*
- William Orrin Robinson, M. S., Marlborough. Scientific Assistant, Bureau of Soils, Dept. of Agriculture.
Washington, D. C.
- Harry Union Russell, West Derry. Student in Graduate School, University of Wisconsin, Private Secretary to Prof. Reinsch.
423 Wisconsin Avenue, Madison, Wis.
- Elmer Seth Savage, Lancaster. Instructor in Dairying, Baron de Hirsch School. *Woodbine, N. J.*
- Castine Caroline Swanson, Cambridge, Mass. Teacher of Science, Music and Drawing, Franklin High School.
17 Upland Road, Cambridge, Mass.
- Frank Alvin Tinkham, Grafton. Assistant in Dairying, New Hampshire College. *Durham.*

1906.

- Samuel Taylor Adams, Pittsfield. Instructor in Physics and Electrical Engineering, New Hampshire College.
Durham, N. H.
- Stuart Kendrick Barnes, Walpole. Chemist, Sharon Coke Works.
P. O. Box 491, Sharon, Pa.
- Charles S. Batchelder, South Hampton. Market Gardening.
Waban, Newton Centre, Mass.
- *Willis Cassius Campbell, West Windham.
- John Dustin Clark, Nashua. Student Assistant in Chemistry, New Hampshire College. *Durham, N. H.*
- Clarence Elbert Clement, Derry. Dairyman.
Cherry Hill Farm, Beverly, Mass.
- Ernest Luther Converse, Amherst. Instructor in Sciences, Virginia Institute. *Bristol, Va.*
- Neil Starr Franklin, Bernardston, Mass. With Westinghouse Electric and Manufacturing Co.
No. 1105 South Avenue, Wilkesburg, Pa.
- Carl Tilson Fuller, Nashua. Chemist, Research Laboratory, General Electric Co. *Schenectady, N. Y.*
- William Safford Gooch, Exeter. Engineering Department, New England Tel. and Tel. Co. *No. 101 Milk St., Boston, Mass.*
- Ralph Edward Gowen, Stratham. With Westinghouse Electric and Manufacturing Co. *1105 South Ave., Wilkesburg, Pa.*
- Edwin Davis Hardy, Nashua. Turbine Department, Westinghouse Machine Co. *1116 South Ave., Wilkesburg, Pa.*

Cyrus Fremont Jenness, Gonic. Market Gardening.

Waban, Newton Centre, Mass.

Allen Montague Johnson, Nashua. With Westinghouse Electric and Manufacturing Co. *1116 South Ave., Wilkesburg, Pa.*

Wallace Fuller Purrington, South Yarmouth, Mass. Assistant Chemist, Rhode Island College Agricultural Experiment Station. *Kingston, R. I.*

Edwin Jay Roberts, Laconia. *172 Union Ave., Laconia, N. H.*

Roy Vance Swain, Barrington. With Autocar Company.

45 Wyoming Avenue, Ardmore, Pa.

Charles Leo Tuttle, Exeter. Engineering Department, New England Tel. and Tel. Co. *101 Milk St., Boston, Mass.*

TWO YEARS' COURSE IN AGRICULTURE.

†Lyman Charles Stratton, Hollis. (1897.) Superintendent Dairy Farm.

Charles Wesley Martin, Durham. (1898.) With Sacramento Gas, Electric & Railway Company.

3219 Magnolia Ave., Oak Park, Sacramento, Cal.

George Henry Wheeler, Temple. (1898.) Farmer. *Temple.*

Fred Joseph Durell, Newmarket. (1900.) Farmer. *Newmarket.*

Harry Alvin Elliott, Lyme. (1900.) Blacksmith. *Lyme.*

Edward Augustus Hills, Hollis. (1900.) Farmer. *Hollis.*

Albert Cate Knowles, Epsom. (1900.) Farmer and Seed Agent. With Dunlap & Sons, Nashua, N. H. *Epsom.*

†Robert Hale Pearson, Webster. (1900.)

Charles Nicklin Blodgett, Hebron. (1901.) Manager Breezy Point Farm, Breezy Point. *Warren.*

Harry Douglass Verder, Hollis. (1901.) Stock Raiser. *Hollis.*

†Rufus Leonard Cushman, North Adams, Mass. (1901.)

†George R. Brew, Lowell, Mass. (1902.)

Carroll W. Farr, North Weare. (1902.) B. S. New Hampshire College, 1904.

George F. Hills, Hollis. 1902.) Florist, New Hampshire College.

†Walter E. Quimby, Deerfield. (1902.)

Walter P. Tenney, Chester. (1902.) Homedale Farm. *Chester.*

†Thornton N. Weeks, Greenfield. (1902.)

Robert E. Whittier, Deerfield. (1902.) Supt. Maplewood Farm, Danvers, Mass.

Edward C. Wilson, Wilton. (1902.) Live Stock Commission, Union Stock Yards, care of Wood Bros.

6022 Princeton Avenue, Chicago, Ill.

†Harry Garfield Brierley. (1903.) Dover.

†George Grover Manning. (1903.) Boston, Mass.

†James Henry Nixon. (1903.) East Brentwood.

- †Roscoe Franklin Swain. (1903.) South Hampton.
 Erland Graves Batchelder. (1904.) Wilton. Dairying and
 Gardener, Kimball Heights Farm.
R. F. D. No. 3, Wilton, N. H.
 Wesley Pillsbury Flint. (1904.) Forester with H. G. Frost &
 Co., 6 Beacon St., Boston, Mass. *Newburyport, Mass.*
 Henry Marston Shurbert. (1904.) Northwood Ridge. Gardener,
 W. B. H. Dowse Estate.
218 Temple Street, West Newton, Mass.
 Arthur G. Dunn. (1905.) Harrisville. Manager of Mine Brook
 Farm. *R. F. D., Medfield, Mass.*
 Henry N. Gowing. (1905.) Dublin. Poultryman and Fruit
 Grower. *Dublin, N. H.*
 Alfred Walter Clough. (1906.) *Greenland.*
 Oliver Carter Dimond. (1906.) West Concord. Farmer.
R. F. D. No. 2, West Concord.
 Ralph Wayne Forristall. (1906.) Alstead. Farmer. *Alstead.*
 Stanley Hargreaves. (1906.) Foreman, Forest Park, Springfield,
 Mass.
 Robert S. Sawyer. (1906.) Farmer. *Walpole, N. H.*

SUMMARY.

Graduates, Bachelors of Science, 1871-1905.....	295
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Agriculturists	57
Architects	1
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Chemists	9
Clergyman	1
Civil, Mechanical, Electrical and Mining Engineers....	46
Draftsmen	5
Graduate Students	4
Lawyers	5
Manufacturers and Mechanics.....	17
Mining	6
Physicians	13
Teachers	30
Unknown	23
United States Army.....	2
United States Weather Bureau.....	6
Dead	17

ALPHABETICAL LIST OF GRADUATES.

- Adams, E. E., 1878.
Adams, G. E., 1885.
Adams, F. S., 1895.
Adams, S. T., 1906.
Adair, R. K., 1877.
Alden, R. S., 1885.
Aldrich, H. C., 1876.
Aldrich, W. H., 1875.
Aldrich, T. E., 1881.
Andrews, H. P., 1900.
Angier, W. E., 1885.
Arnold, E. F., 1883.
Ashton, L., 1904.
Bailey, C. H., 1879.
Bailey, E. A., 1885.
Baker, H. C., 1899.
Ballard, W. P., 1871.
Barker, P. L., 1892.
Barker, W. A., 1904.
Barnard, H. E., 1899.
Barnard, H. L., 1881.
Barnes, S. K., 1906.
Barney, H. W., 1897.
Bartlett, Miss C. A., 1897.
Bartlett, D. B., 1900.
Bartlett, E., 1872.
Bartlett, Miss M. B., 1897.
Batchelder, C. S., 1906.
Batchelder, E. G. (2 year), 1904.
Batchelor, H. D., 1903.
Bickford, E. C., 1904.
Bickford, E. F., 1903.
Bickford P. G., 1885.
Bigelow, F. L., 1883.
Birtwhistle, F. S., 1883.
Blodgett, C. N. (2 year), 1901.
*Boardman, G. J., 1881.
Boutwell, H. L., 1882.
Brew, G. R. (2 year), 1902.
Brierley, H. G. (2 year,) 1903.
Brigham, E. L., 1876.
Brill, A. W., 1885.
Bristol, E. F., 1881.
Bristol, N. D., 1883.
Britton, F. C., 1895.
Britton, W. E., 1893.
*Brooks, H., 1877.
Brooks, P. C., 1885.
Brown, B. S., 1894.
Brown, F. R., 1903.
Eryant, F. J., 1893.
Buck, W. F., 1897.
Bugbee, D. J., 1882.
Burbeck, E. W., 1903.
Burleigh, A. T., 1881.
Burleigh, R. F., 1882.
Furnham, Miss F., 1900.
Butterfield, J. W., 1876.
*Butterfield, R. C., 1898.
Euzzell, Miss H., 1898.
Calderwood, H. H., 1901.
Campbell, P. A., 1904.
Campbell, W. C., 1906.
Carpenter, L. J., 1882.
*Carr, M. B., 1888.
Carson, J. W., 1877.
Caverno, Miss B. E., 1898.
Chamberlin, A. F., 1876.
Chapin, R. C., 1879.
Chesley, J. H., 1905.

- *Chubert, C. O., 1877.
 Clark, J. D., 1906.
 Clement, C. E., 1906.
 Clement, H. E., 1899.
 Clough, A. W. (2 year), 1906.
 Colby, F. H., 1889.
 Colby, I. A., 1899.
 Colburn, A. W., 1897.
 Cole, E. G., 1891.
 Comings, Miss C. L., 1897.
 Comings, F. P., 1883.
 *Comings, Miss M. E., 1897.
 Conradi, Albert M. S., 1902.
 Converse, E. L., 1906.
 Corbett, B. A., 1898.
 Courser, C. H., 1900.
 Cragin, L. M., 1879.
 Cross, A. B., 1876.
 *Cummings, E. S., 1884.
 Currier, W. S., 1887.
 Curtis, F. P., 1875.
 Cushman, R. L. (2 year), 1901.
 Davis, E. G., 1903.
 Davis, F. A., 1886.
 Davis, F. C., 1884.
 Davis, H. G., 1888.
 Dearborn, N., D. Sc., 1901.
 Dennett, I. L., 1897.
 Dewey, E. P., 1882.
 Demond, O. C. (2 year), 1906.
 Dodge, C. O., 1905.
 Doe, Miss Mary, 1902.
 Dorr, Miss A. E., 1901.
 Dunn, A. G. (2 year), 1905.
 Durell, F. J. (2 year), 1900.
 Durgin, A. C., 1898.
 *Edwards, C. A., 1877.
 Eldredge, F. E., 1873.
 Elliott, H. A. (2 year), 1900.
 Ely, F. D., 1881.
 Emerson, F. J., 1885.
 Emerson, F. V., 1875.
 Emery, S. E., 1881.
 Evans, H. W., 1901.
 Everett, R. M., 1891.
 Farr, C. W., 1904 (2 year), 1902.
 Farwell, H. G., 1901.
 *Flint, W. F., 1877.
 Flint, W. P. (2 year), 1904.
 Follansbee, F. H., 1883.
 Foord, J. A., 1898.
 Forristall, E. H., 1897.
 Forristall, R. W. (2 year), 1906.
 Foster, S. M., 1884.
 Foye, Miss B. M., 1900.
 Franklin, N. S., 1906.
 French, A. C., 1883.
 Fuller, C. T., 1906.
 Fuller, F. D., 1892.
 Fullerton, J. W., 1898.
 Gay, J. E., 1883.
 Gerrish, E. C., 1888.
 Gillis, L. C., 1889.
 Gilmartin, E. W., 1902.
 Given, A., 1898.
 Gooch, W. S., 1906.
 Goodrich, J. E., 1904.
 Gowen, Miss E. G., 1901.
 Gowen, R. E., 1906.
 Gowing, H. N. (2 year), 1905.
 Gunn, F. W., 1894.
 Hall, C. C., 1877.
 Hancock, E. H., 1898.
 Hardy, A. W., 1887.
 Hardy, C. W., 1875.
 Hardy, E. D., 1906.
 Hardy, M. F., 1874.
 Hargreaves, S. (2 year), 1906.
 Harvey, J. E., 1886.
 Hayden, S. B., 1905.
 Hayden, W. D. F., 1899.
 Hayes, H. L., 1905.
 Hayes, L. D., 1897.
 Hayes, Miss M. L., 1898.
 Hayes, W. C., 1905.
 Hazen, A., 1885.
 Hazen, C. H., 1881.
 Hazen, W. N., 1888.

- Heath, F. H., 1905.
 Henry, J. G., 1877.
 Hewitt, C. E., 1893.
 Hill, G. H., 1904.
 Hill, H. E., 1894.
 Hills, E. A. (2 year), 1900.
 Hills, G. F. (2 year), 1902.
 Hirakawa, T., 1898.
 Jenness, C. F., 1906.
 Knight, H. N., 1905.
 *Hollister, C. P., 1877.
 Holman, G. M., 1877.
 *Holmes, N. C., 1879.
 Hood, C. H., 1880.
 Horton, F. L., 1899.
 Hough, A. B., 1892.
 Howe, F. W., 1894.
 Hubbard, C. A., 1877.
 Hubbard, C. L., 1893.
 Hunt, C. A., 1901.
 Hunt, J. N., 1897.
 Hunt, W. E., 1899.
 *Hutchinson, L. J., 1889.
 James, O. M., 1893.
 Jenkins, E. D., 1897.
 Jewell, H., 1875.
 Jewett, J. Y., 1890.
 Jewett, E. P., 1901.
 Johnson, A. M., 1906.
 Kelley, E. D., 1883.
 Kendall, J. C., 1902.
 Kenney, L. H., 1899.
 Keown, R. McA., 1901.
 Kimball, H. H., 1884.
 Kimball, W. W., 1876.
 *Kilburn, E., 1878.
 Kittredge, L. H., 1896.
 Knight, H. N., 1905.
 Knowles, A. C. (2 year), 1900.
 Laton, T. J., 1904.
 *Leavitt, C. O., 1875.
 Lee, H. M., 1902.
 Livermore, A. A., 1902.
 Loveland, G. A., 1882.
 Lunt, R. L., 1904.
 Lyon, E. E., 1901.
 Mann, M. B., 1884.
 Manning, G. G. (2 year), 1903.
 Mark, Miss G. A., 1899.
 *McGregor, J. L., 1875.
 Marston, F. P., 1881.
 Mason, J. W., 1882.
 Mason, W., 1897.
 Martin, C. W. (2 year), 1898.
 Mathes, C. E. P., 1900.
 Mathes, H. C., 1898.
 Megrath, W. A., 1881.
 Merrill, A. R., 1904.
 Merrill, G. E., 1902.
 Moore, G. M., 1884.
 Moore, H. F., 1898.
 Moreton, J. W., 1905.
 Morgan, A. B., 1883.
 Morgan, G. A., 1898.
 Mudgett, O. D., 1905.
 Mullins, G. M., 1885.
 Nelson, E. E., 1900.
 Nichols, H. A., 1882.
 Nixon, J. H. (2 year), 1903.
 Norcross, A. Z., 1899.
 Norris, J. L., 1889.
 Norris, Z. A., 1884.
 O'Gara, E. D., 1888.
 Otis, A. N., 1903.
 Parker, D. D., 1876.
 Parker, F. C., 1879.
 Payne, C. A., 1902.
 Pearson, R. H. (2 year), 1900.
 Peck, E., 1875.
 Penneo, G. J., 1901.
 Perkins, L., 1871.
 Pettee, Miss A., 1900.
 Pettee, H. J., 1905.
 Pike, A. M., 1905.
 Porter, G. E., 1888.
 Preston, J. F., 1890.
 Purrington, W. F., 1906.
 Putney, F. S., 1905.

- Putney, H. N., 1899.
 Quimby, W. E. (2 year), 1902.
 Ramsey, I. W., 1875.
 Randall, J. L., 1905.
 Record, C. E., 1878.
 Richardson, H. P., 1898.
 Richardson, S. A., 1904.
 Roberts, E. J., 1906.
 Robertson, Miss M. L., 1900.
 Robinson, W. O., 1905.
 Rollins, R. H., 1903.
 Ruevsky, B. S., 1886.
 Runlett, E. P., 1902.
 Runlett, H. M., 1901.
 Russell, H. U., 1905.
 Sanborn, E. Q., 1890.
 Sanborn, F. D., 1898.
 Sanborn, G. A., 1887.
 Sanders, C. H., 1871.
 Sargent, G. J., 1888.
 Savage, E. S., 1905.
 Savage, H. N., 1887.
 *Sawyer, H. A., 1874.
 Sawyer, R. S. (2 year), 1906.
 Scott, C. W. E., 1889.
 Seward, O. L., 1875.
 Shaw, R. H., 1897.
 Shipley, W. N., 1900.
 Shurbert, H. M. (2 year), 1904.
 Simpson, Miss E. L., 1899.
 Slack, C. I., 1890.
 Smith, A. W., 1893.
 Smith, F. W., 1898.
 Smith, J. F., 1873.
 Smith, J. W., 1888.
 Stanton, F. T., 1881.
 Stewart, M. A., 1903.
 Stickney, V. H., 1881.
 Stillings, C. E., 1900.
 Stone, D. E., 1889.
 Stone, E. M., 1892.
 Stone, E. P., 1891.
 Stratton, L. C. (2 year), 1897.
 Straw, A. E., 1901.
 Sullivan, A. L., 1902.
 Swain, R. F. (2 year), 1903.
 Swain, R. V., 1906.
 Swanson, Miss C. C. 1905.
 Tenney, W. P. (2 year), 1902.
 Thompson, E. C., 1884.
 *Thompson, F. E., 1882.
 Thurber, M. F., 1886.
 Tinkham, F. A., 1905.
 Tolles, B. D., 1898.
 Trow, C. A., 1895.
 Tucker, C. H., 1873.
 Tuttle, C. L., 1906.
 Verder, H. D. (2 year), 1901.
 Vickery, C. W., 1897.
 Waldron, B. L., 1887.
 Walker, G. E., 1888.
 Wallace, S. A., 1881.
 Washburn, F., 1889.
 Wason, E. H., 1886.
 Watson, D. G., 1903.
 Weeks, T. N. (2 year), 1902.
 Wheeler, C. A., 1877.
 Wheeler, D. A., 1897.
 Wheeler, G. H. (2 year), 1898.
 White, F. A., 1872.
 White, M. J., 1903.
 Whitcher, G. H., 1881.
 Whittemore, E., 1877.
 Whittemore, E. S., 1897.
 Whittier, R. E. (2 year), 1902.
 Whittier, W. L., 1883.
 Wilkins, G. H., 1879.
 Willard, E. M., 1875.
 Wilson, E. C. (2 year), 1902.
 Wilson, J. E., 1900.
 Wood, A. H., 1885.
 Wood, G. P., 1886.
 Woodward, C. M., 1883.
 Wright, R. M., 1900.

SPECIMEN ENTRANCE EXAMINATION PAPERS FOR FOUR-YEAR COURSES.

ALGEBRA.

1. Define Algebra, formula, radical, imaginary, degree of equation, simultaneous equations.

2. Explain negative exponents.

Divide $x^{-3} - 1$ by $x^{-\frac{9}{4}} - x^{-\frac{3}{2}} + x^{-\frac{3}{4}} - 1$.

3. Factor $6x^2 - 21y^2x - 8y + 28y^3$; $1 - 25x^2y^2$; $x^2 + x - 6$; $a^5 - b^5$; $a^3 + b^3$; $x^3 + 2x^2 - x - 2$.

4. $3ax + b + cx - 2d = 0$. Solve for x .

$3y + 7x = 10$. $2x - 2y = 3$. Solve for x and y .

5. Find square root of $4x^4 - 4x^3 - 3x^2 + 2x + 1$; of $9 + 2\sqrt{8}$.

6. Multiply $3\sqrt{-3}$; $-2a\sqrt{b}$; $-3b\sqrt{3c}$; $-2c\sqrt{2ab}$.

Rationalize denominator of $\frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} + \sqrt{3}}$

7. $3x^2 - 5x + 10 = 0$. Solve for x .

$3ax^2 - 2x + 3bx + c + 7 = 0$. Solve for x .

8. $(x + 3b)^5$. Expand by binominal formula.

9. A man's age plus that of his wife is 95 years. 40 years ago he was twice as old as she was then. What are their ages now? State the above.

10. A boat's crew can row 9 miles down a river and back in 4 hours. The rate of rowing in still water is double the rate of the current. Find the rate of rowing and the rate of the current. State the above.

PLANE GEOMETRY.

1. Define isosceles triangle, parallelogram, rhombus, trapezoid, limit of a variable.

2. If two parallel lines be cut by a third straight line, the sum of the two interior angles on the same side of the secant line is equal to two right angles. Demonstrate.

3. The three bisectors of the three angles of a triangle meet in a point. Demonstrate.

4. The sum of the interior angles of a polygon is equal to two right angles, taken as many times less two as the figure has sides. Demonstrate.

5. The radius perpendicular to a chord bisects the chord and the arc subtended by it.

6. Given a side of a triangle, its vertical angle, and the radius of the circumscribing circle; construct the triangle.

7. If a line be drawn through two sides of a triangle parallel to the third side, it divides those sides proportionally.

8. To find a mean proportional between two given lines. Demonstrate.

9. Construct a square equivalent to the sum of a given triangle and a given parallelogram.

10. A ten-inch water pipe discharges 200 gallons a minute. What is the diameter of a pipe that discharges 800 gallons a minute under the same pressure?

SOLID GEOMETRY.

1. A plane perpendicular to each of two intersecting planes is perpendicular to their intersection. Demonstrate.

2. An oblique prism is equivalent to a right prism, having for its base a right section of the oblique prism, and for its altitude a lateral edge of the oblique prism. Demonstrate.

3. Find the ratio of the volumes of two rectangular parallelipeds, whose dimensions are 8, 12, and 21, and 14, 15, and 24, respectively.
4. A triangular pyramid is equivalent to one-third of a triangular prism having the same base and altitude. Demonstrate.
5. The volume of a truncated triangular prism is equal to the product of a right section by one-third the sum of the lateral edges. Demonstrate.
6. Find the lateral edge, lateral area, and volume of a frustum of a regular triangular pyramid, the sides of whose bases are 18 and 6, respectively, and whose altitude is 24.
7. The sum of the squares of the four diagonals of a parallelipiped is equal to the sum of the squares of its twelve edges.
8. In two polar triangles, each angle of one is measured by the supplement of that side of the other of which it is the pole. Demonstrate.
9. If the unit of measure for angles is the right angle, the area of a spherical triangle is equal to its spherical excess, multiplied by the area of a tri-rectangular triangle. Demonstrate.
10. How many cubic feet of metal are there in a hollow cylindrical tube 18 ft. long, whose outer diameter is 8 in., and thickness 1 in. ? (Find the difference of the volumes of two cylinders of Revolution. $\pi = 3.1416$.)

PLANE TRIGONOMETRY.

1. Write $\tan. (x+y)$; $\sin. (x-y)$; $\cos. (2x)$; $\sin. (2x)$.
2. Prove $\sin. 2x = \frac{2 \tan. x}{1 + \tan.^2 x}$
3. $51^\circ 20'$. Change to radians.
 $5/4 \pi$ Change to degrees.
4. Construct approximate line values of trigonometric functions of angle of 120 degrees.

5. In oblique plane triangle ABC the three sides a , b , c , are given. Write formula for Angle A.
6. The parallel sides of a trapezoid are 26 and 132, and the angles at the extremities of the latter are 53 degrees, 49 minutes and 67 degrees, 55 minutes. Write the formulas for the non-parallel sides.

BOTANY.

1. Describe the form, structure and reproduction of a particular cryptogamous, or flowerless, plant.
2. What are the following and what part does each play in the life of the plant; chlorophyll, stoma, epidermis, root-hair, protoplasm?
3. Describe an exogenous stem as seen in cross-section. How does it differ from an endogenous stem?
4. Give the meaning of the following; plumule, cotyledon, radicle, testa, epidermis.
5. What is the difference between a fruit and a seed? Name four kinds of fruit and give an example of each.
6. Define corolla, anther, stigma, pistil, sepal, spike, tendril.
7. What is a tuber? A bulb? A stolon? A bract? A node? A petiole? Give an example of each.

ENGLISH.

Where and how long have you studied English? What text books did you use?

Write about one hundred words on each of the following questions, paying great attention to the composition and punctuation.

1. The appearances of the supernatural in Macbeth.
2. The moral teaching of Silas Marner.
3. The death of Sir Roger.
4. The outline of Burke's Speech.
5. The historical situation at the time Burke's Speech was given.

ELEMENTARY FRENCH. (One hour and a half.)

A. Where and how long have you studied French? How many periods per week? What books have you used?

I.

(Translation must be close, but clear and idiomatic English is required.)

Translate:—

“Un jeune seigneur heureusement né n'est ni peintre, ni musicien, ni architecte, ni sculpteur; mais il fait fleurir tous ces arts en les encourageant par sa magnificence: il vaut sans doute mieux les protéger que de les exercer. Il suffit que M. le marquis ait du goût; c'est aux artistes à travailler pour lui; et c'est en quoi on a très grand raison de dire que les gens de qualité (j'entends ceux qui sont très riches) savent tout sans avoir rien appris, parce qu'en effet, ils savent, à la langue, juger de toutes les choses qu'ils commandent et qu'ils paient.”

II.

Je suivis la foule, mais ce n'était qu'une fausse sortie. J'avais laissé mon chapeau dans une encoignure,—un chapeau haut de forme qui m'avait considérablement gêné pendant toute la soirée. Je rentrai sous prétexte de le reprendre et, comme j'étais un peu de la maison, les domestiques ne se méfièrent pas de moi. D'ailleurs ils étaient occupés à transporter à l'office la vaisselle et les verres qui avaient servi aux soupers, et à un certain moment, je me trouvais seul près du buffet. Il n'y avait pas une minute à perdre. Après un furtif coup d'oeil à droite et à gauche, je m'approchai de la corbeille, je fis rouler prestement deux pêches dans mon chapeau, puis je quittai la salle à manger.

III.

L'excessive pesanteur de cet homme dans la destinée humaine troublait l'équilibre. Cet individu comptait à lui seul plus que le groupe universel. Ces pléthores de toute la vitalité humaine concentrés dans une seule tête, le monde montant au cerveau d'un homme, cela serait mortel à la civilisation, si cela durait. Le moment était venu pour l'incorruptible équité suprême d'aviser. Probablement les principes et les éléments, d'où dépendent les gravitations régulières dans l'ordre morale comme dans l'ordre matériel, se plaînaient. Le sang qui fume, le trop-plein des cimetières, les mères en larmes, ce sont des plaidoyers redoutables.

IV.

Prin, parts ;—1) aller ; 2) vaincre ; 3) s'asseoir ; 4) venir ; 5) recevoir ; 6) voir ; 7) mettre ; 8) écrire ; 9) vouloir ; 10) pouvoir.

Translate :—

V.

1. It is time to get up now.
2. Our country cousins have been at our house for four days.
3. We are going to visit our friends in the country.
4. Today it is hot.
5. Have you any books? I have none.
6. Give me some.
7. It is the twentieth of June, nineteen hundred and six.
8. What time is it? It is two o'clock.
9. With whom are you going to Boston?
10. My watch is prettier than the one you have.

ELEMENTARY GERMAN. (One and one-half hours.)

A. Where and how long have you studied German? What text books did you use?

I.

The translation must be close; but clear and idiomatic English is required.

Translate:—

Herr Philipp Simonis war ein entfernter Vetter meines Vaters und damals, als ich ihn kennen lernte, ein Mann von etwa fünfundfünfzig Jahren. Er hatte Theologie und Philologie studiert und war dann als Hofmeister eines reichen jungen Grafen nochmals mit diesem auf die Universität gezogen und später auf Reisen mit ihm weit in der Welt herumgekommen. Der zu allen brauchbare Mann hatte dann auf längere Zeit einen sehr gut dotierten Vertrauensposten als Sekretär des jungen Grafen eingenommen und sich im Laufe der Zeit durch Sparsamkeit ein kleines Vermögen erworben. Als er durch den Tod seines früheren Zöglings diesen Posten verlor, kam er zu meinen Eltern nach Steinhäusen auf Besuch. An diesem Orte gefiel es ihm wohl, und er wurde bald mit so vielen Fäden an ihm geknüpft, dass er dort hängen blieb.

II.

Seit wir in die heisse Zone eingetreten waren, konnten wir jede Nacht die Schönheit des südlichen Himmels nicht genugsam bewundern, welcher in dem Masse, als wir nach Süden vorrückten, neue Sternbilder vor unsern Augen entfaltete. Man hat ein wunderbar bekanntes Gefühl, wenn man bei der Annäherung gegen den Äquator, und besonders wenn man von der einen Hemisphäre in die andere übergeht, allmählich die Sterne niederer werden und zuletzt verschwinden sieht, welche man von seiner ersten Kindheit an kennt.

III.

Er setzte sich hin, um zu arbeiten, aber er hatte keine Gedanken. Nachdem er es eine Stunde lang vergebens versucht hatte, ging er ins Familienzimmer hinab. Es war niemand da, nur kühle grüne Dämmerung; auf Elisa-

beths Nähtisch lag ein rotes Band, das sie am Nachmittag um den Hals getragen hatte. Er nahm es in die Hand, aber es that ihm weh, und er legte es wieder hin. Er hatte keine Ruhe, er ging an den See hinab und band den Kahn los; er ruderte hinüber und ging noch einmal alle Wege, die er kurz vorher mit Elisabeth zusammen gegangen war.

IV.

Prin parts:—1) laufen; 2) fahren; 3) gehen; 4) helfen; 5) gelingen; 6) ziehen; 7) schneiden; 8) vergessen; 9) sein; 10) tun.

Inflect:—1) Present of geben; 2) imperfect of sehen; 3) perfect of sein.

VI.

Translate:—

1. Today is the fourteenth of June, nineteen hundred and six.
2. In summer the days are longer than in winter.
3. A week ago I was at home.
4. The boy drank two glasses of milk.
5. What time is it? It is half past nine.
6. I should like to go.
7. She is said to be very old.
8. I shall write to you as soon as you will let me know where you live.
9. When it struck four o'clock, he stepped into the house.
10. He went fishing.

ELEMENTARY LATIN. (2 hours.)

A. Where and how long have you studied Latin? What text books did you use?

I.

(The translation should be close; but clear and idiomatic English is required.)

Translate:—

(Labienus sends the tenth legion as a relief to the Romans).

Caesar, cum septimam legionem, quae juxta constiterat, item urgeri ab hoste vidisset, tribunos militum monuit, ut paulatim sese legiones conjungerent et conversa signa in hostes inferrent. Quo facto cum alius alii subsidium ferret, neque timerent, ne aversi ab hoste circumvenirentur, audacius resistere ac fortius pugnare coeperunt. Interim milites legionum duarum, quae in novissimo agmine praesidio impedimentis fuerant, proelio muntiato cursu incitato in summo colle ab hostibus conspiciebantur, et T. Labienus, castris hostium potitus et ex loco superiore, quae res in nostris castris gererentur, conspicatus deciman legionem subsidio nostris misit. (Caesar's Gallic War II. 26.)

II.

1. In I explain fully *vidisset*.
2. Explain fully *conjungerent* in I.
3. Explain fully *quo* in I.
4. Prin. parts; (a) constiterat; (b) vidisset; (c) facto; (d) ferret; (e) misit.
5. Decline in singular and plural; (a) militum; (b) alius; (c) res.

III.

(At sight)

Atque cum Caesar eo die in senatum venisset, absidentem conjurati specie effici circumsteterunt ilicoque unus, quasi aliquid rogaturus, propius accessit renuentique ab utroque umero togam apprehendit. Deinde clamantem, "Ista quidem vis est," Casca, unus e conjuratis, adversum volnerat paulum infra jugulum.

ADVANCED LATIN. (2 hours).

A. Where and how long have you studied Latin? What books have you used?

I.

(The translation should be close ; but clear and idiomatic English is required.)

(Aeneas warned to flee)

Ut primum alatis tetigit magalia plantis.
Aeneam fundantem arces ac tecta novantem
Conspicit ; atque illi stellatus jaspide fulva
Ensis erat, Tyrioque ardebat murice laena
Demissa ex umeris, dives quae munera Dido
Fecerat, et tenui telas discreverat auro.
Continuo invadit : 'Tu nunc Karthaginis altae
Fundamenta locas, pulchramque uxorius urbem
Extruis, heu regni rerumque oblite tuarum?

Virgil IV—258—267.

II.

Diffugimus visu exsanguis ; illi agmine certo
Laocoonta petunt ; et primum parva duorum
Corpora natorum serpens amplexus uterque
Implicat, et miseros morsu depascitur artus ;
Post ipsum auxilio subeuntem ac tela ferentem
Corripiunt, spirisque ligant ingentibus ; et jam
Bis medium amplexi, bis collo squamea circum
Terga dati, superant capite et servicibus altis.

Virgil II—212—220.

III.

Write about five characters (five lines each) in Virgil.

IV.

(The conspiracy now thwarted)

Nunc quoniam, Quirites, conscleratissimi periculosissimi-
que belli nefarios duces captos jam et comprehensos tenetis,
existimare debetis omnis Catilinae copias, omnis spes atque

opes, his depulsis urbis periculis, concidisse. Quem quidem ego cum ex urbe pellebam, hoc providebam animo, Quirities, —remoto Catilina, non mihi esse P. Lentuli somnum, nec L. Cassi adipes, nec C. Cethegi furiosam temeritatem pertimescendam. (Cicero, Third Oration against Catiline VII. 16.)

HISTORY I. (American.)

A.

Give account of collateral reading.

B.

1. Give an outline of the life of Columbus, including (a) the question of his knowledge of previous discoveries, (b) the reasons for wishing to discover a new route, (c) the history of his attempts and failures before getting ships, (d) an account of each of his voyages and the discoveries made.

2. Give an account of the discoveries and explorations of (a) Cartier, (b) De Soto, (c) Ponce de Leon, (d) Balboa, (e) Magellan.

3. Give some account of each of the following and state the part taken by each in the history of the country, (a) Roger Williams, (b) Lord Baltimore, (c) LaSalle.

4. Give (a) the history of the New England Confederation, (b) an outline of the wars with the French 1689-1748.

5. Give an account of Burgoyne's expedition. Give an account of the political results that followed the latter.

6. When and for how long was Washington president? Give an account of political parties of that time. Give an account of the life work of Alexander Hamilton.

7. Give an account of the X. Y. Z. papers. Give an account of the Alien and Sedition Laws.

8. Give some account of each of the following,—(a) Erie Canal, (b) Missouri Compromise, (c) Monroe Doctrine, (d) war with Tripoli, (e) Aaron Burr.

HISTORY I. (American.)

9. Give a brief account of the principal historical events connected with each of the following,—(a) Major Anderson, (b) Merrimac (ship), (c) Vicksburg, (d) Gettysburg, (e) Bull Run.

10 Congress consists of what branches? Constitutional provisions for the election of the members of each branch? Elected for how long? Qualifications? Vacancies how filled?

11. Fully state the constitutional provisions for the elections of President and Vice-President.

HISTORY.

2. Ancient History.

1. (a) Name three important islands or groups of islands in the Aegean Sea. (b) Name the important island near the eastern coast of Greece. (c) Name some important island near the western coast of Greece. (d-e) Name the historically important island midway between Greece and Egypt. Give a brief account of the important traditions and the early history of that island.

2. Give a brief account of the history and the influence of the Delphian oracle. (b) Describe the three classes of people in Sparta. (c-d) Give a description of the government of Sparta. (e) What was the myth of Lycurgus?

3. The Persian Invasion: (a) Give brief account of principal expedition sent by Darius; (b-c) Give brief accounts of the four important battles resulting from the invasion of Xerxes; (d-e) Give an outline of collateral reading on the Persian Invasion.

4. Give outlines of life and public services of each of the following: (a) Pericles; (b) Alcibiades; (c) Socrates; (d) Xenophon; (e) Epamimondas.

5. (a) Describe the causes in Rome leading to the establishment of the tribunate. (b-c) Give the history and character of the laws of the twelve tables. (d) Give an

account of the war with the Greeks (Pyrrhus). (e) State the general fact about Roman road making.

6. (a-c) Give brief outlines of the three wars between Rome and Carthage. (d) Explain the Roman provincial system. (e) Give brief accounts of Marius and Sulla.

7. Give some account of five books used for collateral reading in Ancient History.

Note. Students who have given two full years to the study of Ancient History and have passed this examination, can make a special arrangement in regard to an additional examination which will give them the credit of an additional unit. See Catalog.

HISTORY.

3. English History.

1. Draw an outline map, or outline maps of the British Isles showing (a) The most important physical features; (b) The wall of Hadrian; (c) The wall of Antonine; (d) The seven kingdoms; (e) The situation of five important cities.

2. Give brief accounts of (a) The Roman conquest of Britain; (b) the character of the Roman influence; (c) results of the Roman withdrawal; (d) remains of Roman occupation; (e) account of three books treating of the Romans in Britain.

3. (a) Describe the early Germans. (b) Give brief account of the Anglo-Saxon Conquest. (c) Give brief account of the Danish conquest. (d) Give brief account of the Norman conquest. (e) Give an account of the poem of Beowulf.

4. (a-c) Give a brief account of the religious changes made by Henry VIII, Mary Tudor and Elizabeth. (d) Give some account of the literature of the time of Elizabeth. (e) Give some account of agriculture and the manufactures under the Tudors.

5. (a-b) Give a brief but comprehensive account of Magna Charta. (c) State the substance of the Petition of

Right. (d) State the substance of the Habeas Corpus Act. (e) State the substance of the Bill of Rights.

6. (a) Give a brief account of the Reform Bill of 1832. (b) Explain what the corn laws were. (c) Give in order with approximate dates the Hanoverian rulers. (d) Give an explanation of the power of parliament and the methods of controlling Parliament. (e) In a few sentences give some account of three books of value in explaining the England of the nineteenth century.

HISTORY.

4. Mediaeval and Modern History.

1. (a) Give some account of the personal characteristics of Charlemagne. (b) Mention some special authority on the life of Charlemagne. Name three books treating of the period of Charlemagne. (c) Give a brief account of his wars with the Saxons and Lombards. (d) Draw map showing the partition of Verdun. (e) What were the general characteristics of the descendants of Charlemagne?

2. (a-b) Give an explanation of the terms benefice, lord, vassal and subvassal; and the relations of feudalism. (c) Explain the importance of feudalism from a military and social point of view. (d) Give some reasons for feudalism. Name the nations that best illustrated its characteristics. (e) Name three books which give some account of feudalism.

3. (a) Explain the reasons for the Crusades:—(b) Give a brief account of third Crusade; (c) Give a brief account of fourth Crusade; (d) Give some account of the three religious-military orders; (e) Name three books treating of the Crusades.

4. (a) Give a brief account of principal causes of the Thirty Years' War. (b) Give brief account of the Bohemian election; (c) Of the end of Danish period; (d) Give a brief account of the last campaign of Gustavus Adolphus; (e) Give an account of the Peace of Westphalia.

5. Explain the territorial settlement of Europe made by the Congress of Vienna. (b) Explain the influence of Czar Alexander in regard to The Holy Alliance. (c) Give an account of the July Revolution in Paris, 1830. (d) Give an account of the February Revolution in Paris, 1848. (e) Explain how the Third Republic was established in France.

6. (a) Give a brief account of the Crimean War. (b) State the causes of the Russo-Turkish War of 1877-78. (c) Explain the work done by Congress of Berlin, 1878. (d) Draw map showing states of south-eastern Europe after 1878. (e) Give some account of three books dealing with parts of questions 5 and 6.

PHYSICAL GEOGRAPHY.

1. State the causes of the variations in season, climate, day and night.

2. What are ocean currents? How are they caused? Trace two important currents and state the influences exerted by each upon climate and civilization.

3. What are tides? How are they caused? Give causes for the variations in tidal height.

4. What is meant by erosion? How is it accomplished and what changes does it make in the topography of a country?

5. Discuss the glacial period and the results produced by it.

6. State briefly in what region active volcanoes are to be found. Give an explanation of volcanic eruptions. What are geysers? Locate two famous geyser regions.

7. Discuss trade winds and anti-trade winds.

ZOOLOGY.

1. Describe the structure and mode of growth of Amoeba. To what class does Amoeba belong? How does this class differ from others.

2. Describe the structure and method of use of the apparatus by which the clam respire.

3. To what class does the clam belong? What other animals belong to this class? How do they differ from the clam?

4. To what class does the earthworm belong? How does this class differ from others?

5. Describe the internal structure of the earthworm.

6. Define an insect. How does an insect differ from the crayfish or lobster, from a spider, from a myriapod?

7. Name the different orders of insects and give common examples of each.

8. Contrast the life history of a butterfly and grasshopper, naming the stages in the life of each.

9. What distinguishes the vertebrate animals from all others. Name and define as best you can the different orders of vertebrates.

10. Describe the circulatory system of a mammal.

PHYSICS.

1. Define: Mechanics, inertia, elasticity, acceleration, kinetic energy, and absolute density of a solid. Why does a flywheel help to steady the motion of running machinery? Two forces at right angles to each other,—one constant, the other variable, are acting on the same body. Show by a sketch the form of path traversed by the body in motion.

Describe the different kinds of equilibrium. How do you account for the fact that a rain drop may be seen while falling even though it has fallen from a cloud a mile or two high? Name the simple machines. State Archimede's Principle. State the laws of hydrostatic pressure. Explain the siphon.

2. Define: Sound,—an echo, overtones, and interference. Distinguish between noise and music. When a wind blows over a field of grain (or grass) a series of waves is set up. Describe the motion of the waves and the heads of grain. What are the effects of resonance? In what way may strings

be set in vibration, and upon what will the character of the tone emitted depend?

3. What is the kinetic (or dynamic) theory of heat? Distinguish between temperature and quantity of heat. Name some of the sources of heat, and the methods of transmitting heat. What are the effects of heat? What is meant by the latent heat of fusion—of vaporization? State the method used by Joule for determining the "Mechanical Equivalent of Heat."

4. Define: A luminous body, a shadow, a mirror, diffused reflection, a prism, and dispersion of light. How do you account for the sun being seen when it is really below the horizon? Assume an object—first in front of a concave mirror and secondly in front of a convex—(plano)—lens. Construct the image for the assumed object. What is meant by the visible spectrum?

5. What is meant by a magnetic field,—a permanent magnet, and by static electricity? What is meant by "local action" in a voltaic cell? How may it be remedied? What are the effects of an electric current? Describe the method of charging a conductor by induction. How do you account for the clouds being charged with electricity? Why can a greater current be obtained from a storage cell than from a primary cell? What is meant by the ohm, the volt, and the ampere?

GEOLOGY.

1. Describe the destructive and constructive action of glaciers.

2. Describe the influence of rivers in the formation and destruction of land and the laws governing same.

3. Describe the influence of animal and plant life in the formation of soil and rock.

4. What is a *fault*? A *fold*? A *joint*?

5. What is a fossil? Of what value are they geologically? What classes of fossils are most common?

6 and 7. Name the different geological periods in the formation of the earth's crust and name the plant and animal life characteristic of each.

8. In what age was coal formed? Describe the origin and formation of coal.

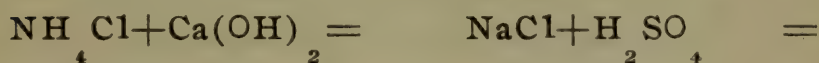
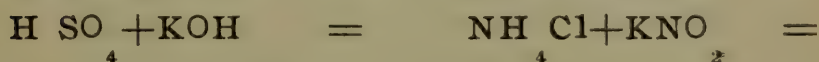
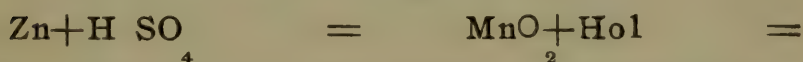
9. Describe the action and formation of volcanoes. Where are they mostly found?

10. Define Geology. Name the different branches or divisions of geology, characterizing each.

CHEMISTRY.

1. Give the formula for the following substances: Aluminum Hydroxide, Potassium chlorate, nitrous oxide, nitric oxide, mercurous chloride, zinc white, blue vitrol, plaster of Paris.

2. Complete the following reactions:



3. What is a salt? State how salts derive their names.

4. Upon what two laws is the atomic theory based? State them.

5. What is meant by neutralization? Give your answer in terms of the dissociation (ionization) theory.

6. Give the method of preparation and properties of chlorine.

7. Give the method of preparation and properties of hydrogen.

8. How many grams and how many liters of ammonia can be made from 53.4 gms. of ammonium chloride $N=14$, $H=1$, $Cl=35.4$?

9. Enumerate some of the chief commercial compounds of sodium and write all you know about one of them.

10. What are the chief chemical and physical distinctions between cast iron, wrought iron and steel?

SPECIMEN ENTRANCE EXAMINATION FOR TWO-YEAR STUDENTS.

GEOGRAPHY.

1. Name and locate the capitals of the following states: New York, Arkansas, California, Iowa, Ohio, South Carolina, New Jersey and Utah.
2. Name the six largest cities of the United States and tell where they are located.
3. Name the five largest rivers of the United States and tell where they rise and where they empty.
4. Where are the following mountains: Adirondack, Sierra Nevada, Ozark, Wahsatch, Alleghany, Green and Blue Ridge?
5. Bound the following states: Georgia, Washington, Illinois and Vermont.
6. Through what bodies of water would you pass in going by steamboat from Pittsburg to Chicago?
7. Describe the physical features of New England.
8. What is the area and population of New Hampshire?
9. In about what latitude and longitude is New Hampshire located.
10. Name the counties of New Hampshire and give their county seats.

ARITHMETIC.

1. Give tables for dry measure and square measure.
2. Multiply 18 and $\frac{2}{3}$ by $\frac{4}{15}$.
3. Divide 4.57683 by .0123.
4. How many tons of hay could be placed in a mow 14 feet square and 22 feet deep, assuming that a cubic foot of hay weighs 6 lbs?

5. What would be the cost of 2,660 lbs. of hay at \$14 per ton?
6. How many apple trees could be set in a 6-acre orchard if the trees were placed 40 feet apart each way?
7. What would be the interest on \$350 for 20 months at 6 per cent?
8. How many cords in a pile of cord wood 68 feet long and 6 feet high?
9. A bushel contains 2,150 cubic inches; how many bushels of oats could be placed in a bin 6 feet wide, 5 feet deep and 12 feet long?
10. How many tons of silage could be placed in a round silo 14 feet in diameter and 30 feet deep, assuming that a cubic foot of silage weighs 40 lbs.?

ENGLISH.

1. Write a complete letter in answer to an advertisement, asking for a position.
2. Write a careful description of the appearance of the town from which you have come.
3. Define and illustrate the parts of speech.
4. Illustrate the use of the different marks of punctuation. What is a verbal noun, an infinitive, a noun in apposition?
5. Write, in 100 words, the story of the last interesting book you have read.

HISTORY OF THE UNITED STATES.

1. (a) Give an account of the first settlement in Virginia. (b) Give an account of the first settlement in Massachusetts.
2. Give some account of the French and Indian War, including (a) causes, (b) campaign of 1755, (c) most important campaign, (d) political results that followed the war, (e) connection, if any, with American Revolution.

3. Name the presidents of the United States, stating approximately the years when each one was in office. Give the political party of each one and some one important fact concerning his administration.

4. What were the causes of the Spanish-American War? What were the results?

5. What is the meaning of "sixteen to one?" What political parties exist at present? What change is proposed in election of United States senators?

CATALOG

OF THE

NEW HAMPSHIRE COLLEGE

OF

Agriculture and the Mechanic Arts

DURHAM, NEW HAMPSHIRE

1907-1908

PRINTED AND BOUND BY
RUMFORD PRINTING COMPANY
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CALENDAR.

1907.	1908.	1909.
JULY.	JANUARY.	JANUARY.
S M T W T F S	S M T W T F S	S M T W T F S
.. 1 2 3 4 5 6 1 2 3 4 1 2
7 8 9 10 11 12 13	5 6 7 8 9 10 11	3 4 5 6 7 8 9
14 15 16 17 18 19 20	12 13 14 15 16 17 18	10 11 12 13 14 15 16
21 22 23 24 25 26 27	19 20 21 22 23 24 25	17 18 19 20 21 22 23
28 29 30 31	26 27 28 29 30 31 ..	24 25 26 27 28 29 30
..	31
AUGUST.	FEBRUARY.	FEBRUARY.
S M T W T F S	S M T W T F S	S M T W T F S
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4 5 6 7 8 9 10	2 3 4 5 6 7 8	7 8 9 10 11 12 13
11 12 13 14 15 16 17	9 10 11 12 13 14 15	14 15 16 17 18 19 20
18 19 20 21 22 23 24	16 17 18 19 20 21 22	21 22 23 24 25 26 27
25 26 27 28 29 30 31	23 24 25 26 27 28 29	28
..
SEPTEMBER.	MARCH.	MARCH.
S M T W T F S	S M T W T F S	S M T W T F S
1 2 3 4 5 6 7	1 2 3 4 5 6 7	.. 1 2 3 4 5 6
8 9 10 11 12 13 14	8 9 10 11 12 13 14	7 8 9 10 11 12 13
15 16 17 18 19 20 21	15 16 17 18 19 20 21	14 15 16 17 18 19 20
22 23 24 25 26 27 28	22 23 24 25 26 27 28	21 22 23 24 25 26 27
29 30	29 30 31	28 29 30 31
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OCTOBER.	APRIL.	APRIL.
S M T W T F S	S M T W T F S	S M T W T F S
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6 7 8 9 10 11 12	5 6 7 8 9 10 11	4 5 6 7 8 9 10
13 14 15 16 17 18 19	12 13 14 15 16 17 18	11 12 13 14 15 16 17
20 21 22 23 24 25 26	19 20 21 22 23 24 25	18 19 20 21 22 23 24
27 28 29 30 31	26 27 28 29 30	25 26 27 28 29 30 ..
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NOVEMBER.	MAY.	MAY.
S M T W T F S	S M T W T F S	S M T W T F S
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3 4 5 6 7 8 9	3 4 5 6 7 8 9	2 3 4 5 6 7 8
10 11 12 13 14 15 16	10 11 12 13 14 15 16	9 10 11 12 13 14 15
17 18 19 20 21 22 23	17 18 19 20 21 22 23	16 17 18 19 20 21 22
24 25 26 27 28 29 30	24 25 26 27 28 29 30	23 24 25 26 27 28 29
.. .. .	31	30 31
..
DECEMBER.	JUNE.	JUNE.
S M T W T F S	S M T W T F S	S M T W T F S
1 2 3 4 5 6 7	.. 1 2 3 4 5 6	.. .. 1 2 3 4 5
8 9 10 11 12 13 14	7 8 9 10 11 12 13	6 7 8 9 10 11 12
15 16 17 18 19 20 21	14 15 16 17 18 19 20	13 14 15 16 17 18 19
22 23 24 25 26 27 28	21 22 23 24 25 26 27	20 21 22 23 24 25 26
29 30 31	28 29 30	27 28 29 30
..

COLLEGE CALENDAR.

1907.

- Sept. 3-4. Examinations for admission begin Tuesday at 9 a. m.
- Sept. 4. Registration day. First term begins Wednesday.
- Oct. 9. Stated meeting of Trustees.
- Dec. 20. First term ends Friday night.

WINTER VACATION.

1908.

- Jan. 7. Registration day. Second term begins Tuesday.
- Jan. 8. Stated meeting of the Trustees.
- March 13. Second term ends Friday night.

SPRING VACATION.

- March 24. Registration day. Third term begins Tuesday.
- April 8. Stated meeting of Trustees.
- May 26. Senior examinations completed, 4 p. m.
- May 31. Baccalaureate sermon, Sunday at 10.45 a. m.
- June 1. Prize Drill, 8 p. m., in the Armory.
- June 2. Class Day.
- Stated meeting of Trustees.
- Concert at 8 p. m. in Thompson Hall.
- June 3. Commencement Day, Wednesday.

SUMMER VACATION.

1908.

- Sept. 15-16. Examinations for admission begin Tuesday at 9 a. m.

- Sept. 16. Registration day. First semester begins
Wednesday.
Oct. 7. Stated meeting of Trustees.
Dec. 18. College closes Friday night.

CHRISTMAS VACATION.

1909.

- Jan. 5. College opens Tuesday.
Feb. 1-5. Mid-year examinations.

WINTER VACATION.

- Feb. 10. Registration day. Second semester begins
Wednesday.

BOARD OF TRUSTEES.

HIS EXCELLENCY, Gov. CHARLES M. FLOYD, *ex officio*.

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PRES. WILLIAM D. GIBBS, Durham, *ex officio*.

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HON. WARREN BROWN, Hampton Falls.

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CHARLES L. PARSONS, B. S., *Professor of Inorganic Chemistry.*

CARLETON A. READ, S. B., *Professor of Mechanical Engineering and Director of Shops.*

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CHARLES JAMES, F. I. C., *Assistant Professor of Inorganic Chemistry.*

WILLIAM H. PEW, B. Sc. (Agr.), *Assistant Professor of Animal Husbandry.*

SAMUEL T. ADAMS, B. S., *Assistant Professor of Physics and Electrical Engineering.*

FRANK R. BROWN, B. S., *Instructor in Machine Work.*

DAVID L. RANDALL, PH. D., *Instructor in Chemistry.*

RAY A. SPENCER, A. B., *Instructor in English and Modern Languages.*

HARRY E. INGHAM, B. S., *Instructor in Wood Work.*

THOMAS J. LATON, B. S., *Instructor in Drawing.*

CHARLES S. SPOONER, A. B., *Instructor in Entomology.*

JOHN CLYDE WILCOX, B. S., *Instructor in Horticulture.*

CHARLES P. COOPER, M. E. in E. E., *Assistant in Mathematics and Electrical Engineering.*

WILLIAM M. BARROWS, B. S., S. B., S. M., *Assistant in Zoology.*

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DAVID LUMSDEN, *Foreman of Gardens and Greenhouse.*

GEORGE S. HAM, *Farm Foreman.*

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GERTRUDE WHITEMORE, PH. B., *Librarian.*

CHARLOTTE A. THOMPSON, *Assistant Librarian.*

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EDITH M. DAVIS, *Purchasing Agent.*

NELLIE F. WHITEHEAD, *Bookkeeper.*

ENGINEER AND CURATOR OF BUILDINGS.

OSCAR W. STRAW.

*Resigned Nov., 1907.

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*Resigned Nov., 1907.

STUDENTS.

a—Agricultural Course; *c*—Course in Technical Chemistry; *g*—General Course; *m e*—Mechanical Engineering; *e e*—Electrical Engineering; *u*—Unclassified. Sophomores in the Engineering Courses are designated by *e* only. Freshmen are not classified in courses.

SENIORS.

Name.	Residence.	Room.
Adams, Waldo Lawrence <i>c</i>	<i>Townsend, Mass.</i>	Mrs. Sanders'.
Barton, Arthur Hosea <i>e e</i>	<i>Newport.</i>	Thompson Hall.
Batchelder, Arthur Milliken <i>e e</i>	<i>Suncook.</i>	Kappa Sigma House.
Buss, Minot Giles <i>e e</i>	<i>Wilton.</i>	Kappa Sigma House.
Carlisle, Lawrence Andrew <i>a</i>	<i>Exeter.</i>	Delta Hall.
Chesley, Mary Abbie <i>g</i>	<i>Lee.</i>	Lee.
Clough, Frances <i>e e</i>	<i>Contoocook.</i>	Kappa Sigma House.
Cone, Charles Francis <i>e e</i>	<i>Nashua.</i>	Zeta House.
Cory, Merton M. <i>e e</i>	<i>Nashua.</i>	Pettee Block.
Croghan, John Timothy <i>m e</i>	<i>Concord,</i>	Kappa Sigma House.
DeMeritt, Katharine <i>g</i>	<i>Durham.</i>	Mr. A. DeMeritt's.
Evans, Walter Woods <i>c</i>	<i>East Kingston.</i>	Delta Hall.
Farwell, Oren Lovell <i>a</i>	<i>Harrisville.</i>	Delta Hall.
French Harry Fifield <i>c</i>	<i>Plymouth.</i>	Kappa Sigma House.
Hill, Stanley Fisk <i>u</i>	<i>Nashua.</i>	Delta Hall.
Kirkpatrick, William R. <i>m e</i>	<i>Nashua.</i>	Delta Hall.
Page, John Caleb <i>g</i>	<i>Dover.</i>	Nesmith Hall.
Perley, George Arthur <i>c</i>	<i>Goffstown.</i>	Prof. Pettee's.
Pettee, Sarah Elizabeth <i>g</i>	<i>Durham.</i>	Prof. Pettee's.
Sanborn, Moses Herman <i>a</i>	<i>Fremont.</i>	Zeta House.
Smalley, Dean Fred <i>m e</i>	<i>Walpole.</i>	Delta Hall.
Tarbell, Carl Brown <i>m e</i>	<i>Milton.</i>	Kappa Sigma House.
Wadleigh, Ray Emery <i>m e</i>	<i>Hampton Falls.</i>	Kappa Sigma House.
Waite, George Lyman <i>a</i>	<i>Dunbarton.</i>	Zeta House.
Walker, Harold Duncan <i>e e</i>	<i>Kittery Point, Me.</i>	Zeta House.
Woodman, Francis Ward <i>c</i>	<i>West Derry.</i>	Beta House.

JUNIORS.

Name.	Residence.	Room.
Ackerman, Laurence Day <i>c</i>	<i>Bristol.</i>	Kappa Sigma House.
Atwell, Robert King <i>g</i>	<i>Portsmouth.</i>	Pettee Block.
Batchelder, Henry Edward <i>m e</i>	<i>Exeter.</i>	Pettee Block.
Brown, Edna Olive <i>g</i>	<i>Rye Beach.</i>	Mr. Wentworth's.
Cash, James Denis <i>a</i>	<i>Manchester.</i>	Zeta House.
Chase, Carl <i>m e</i>	<i>Webster.</i>	Kappa Sigma House.
Doe Marion <i>g</i>	<i>Durham.</i>	Mr. F. Doe's.
Ellsworth, Perry Foss <i>e e</i>	<i>Meredith.</i>	Mr. Hoitt's.
Falconer, John Ironside <i>a</i>	<i>Milford.</i>	Beta House.
Fellows, Ernest Roslyn <i>e e</i>	<i>Exeter.</i>	Mr. F. Brown's.
Goodwin, Otis Dana <i>e e</i>	<i>Hollis.</i>	Pettee Block.
Hammond, Roland Bowman <i>e e</i>	<i>Nashua.</i>	Zeta House.
Huse, Merritt Chase <i>e e</i>	<i>Concord.</i>	Kappa Sigma House.
Kelley, Charles William <i>m e</i>	<i>Barnstead.</i>	Beta House.
Kennedy, Carl Duncan <i>c</i>	<i>Concord.</i>	Pettee Block.
Lougee, Bernard Ayers <i>e e</i>	<i>Pittsfield.</i>	Dr. Grant's.
Merrill, Maurice David <i>e e</i>	<i>Andover.</i>	Thompson Hall.
O'Connor, John Joseph <i>e e</i>	<i>Portsmouth.</i>	Zeta House.
Parker, John Edward <i>a</i>	<i>Goffstown.</i>	Mrs. Sanders'.
Peaslee, Albert <i>m e</i>	<i>Gonic.</i>	Mr. Burnham's.
Pike, Herbert Samuel <i>m e</i>	<i>Lisbon.</i>	Mr. Edgerly's.
Pratt, Lester Albert <i>c</i>	<i>Alton Bay.</i>	Kappa Sigma House.
Priest, James Harry <i>e e</i>	<i>Manchester.</i>	Mrs. J. Thompson's.
Quimby, Harold Wallace <i>m e</i>	<i>Northwood Narrows.</i>	Mr. Hoitt's.
Richardson, Charles Sidney <i>m e</i>	<i>Cornish Center.</i>	Beta House.
Sargent, George Jackman <i>c</i>	<i>Concord.</i>	Pettee Block.
Smalley, Lee Lawrence <i>m e</i>	<i>Walpole.</i>	Delta Hall.
Stevens, Ernest Morton <i>m e</i>	<i>Andover.</i>	Pettee Block.
Stokes, Iva Dorothy <i>g</i>	<i>Epsom.</i>	Mr. Wentworth's.
Townsend, Harry Storrs <i>a</i>	<i>Lebanon.</i>	Delta Hall.
Trickey, John Paul <i>c</i>	<i>Rochester.</i>	Kappa Sigma House.
Tucker, James William <i>e e</i>	<i>Concord.</i>	Pettee Block.
Wendell, Chester Snell <i>e e</i>	<i>Dover.</i>	Beta House.
Wilder, Howard Erwin <i>m e</i>	<i>Amesbury, Mass.</i>	Pettee Block.
Wilkins, Carroll Blaisdell <i>a</i>	<i>Nashua.</i>	Zeta House.
Wilkins, Harold Hartshorn <i>m e</i>	<i>Amherst.</i>	Delta Hall.
Woods, Arthur Page <i>m e</i>	<i>Bath.</i>	Pettee Block.

SOPHOMORES.

Name.	Residence.	Room.
Anderson, David Wadsworth <i>a</i>	<i>Manchester.</i>	Kappa Sigma House.
Bills, Frank Hartwell <i>e</i>	<i>Reed's Ferry.</i>	Mr. Hayes'.

SOPHOMORES (*Continued.*)

Name.	Residence.	Room.
Blake, Alfred Edward <i>c</i>	<i>Nashua.</i>	Prof. Scott's.
Boynton, Dalton <i>e</i>	<i>Little Boar's Head.</i>	Pettee Block.
Bryant, Orville Frank <i>c</i>	<i>Ashland.</i>	Kappa Sigma House.
Burns, Lucian Holmes <i>a</i>	<i>Milford.</i>	Prof. Scott's.
Burroughs, Edgar Herbert <i>e</i>	<i>Sanbornville.</i>	Kappa Sigma House.
Burroughs, Wilbur Warren <i>e</i>	<i>Sanbornville.</i>	Kappa Sigma House.
Campbell, William Smith <i>e</i>	<i>Litchfield.</i>	Pettee Block.
Chamberlin, George H. <i>e</i>	<i>Woodsville.</i>	Delta Hall.
Chase, Fred Odell <i>a</i>	<i>Warner.</i>	Pettee Block.
Clark, Maurice Chester <i>e</i>	<i>Marlborough.</i>	Mr. Stevens'.
Colburn, Kenneth Crosby <i>e</i>	<i>Francestown.</i>	Beta House.
Corliss, Harry Percival <i>c</i>	<i>Wolfeboro,</i>	Delta Hall.
Corson, Harry Peach <i>c</i>	<i>Laconia.</i>	Mr. Sawyer's.
Cotton, Arthur Clyde <i>e</i>	<i>Alton.</i>	Pettee Block.
Crosby, Percy Raymond <i>e</i>	<i>Atkinson.</i>	Pettee Block.
Day, Harold Robbins <i>c</i>	<i>Hudson.</i>	Zeta House.
Edgerly, Edwin Blake <i>a</i>	<i>Mirror Lake.</i>	Mr. Hayes'.
Emery, Roland Chester <i>e</i>	<i>Hampton.</i>	Mr. Burnham's.
Fisher, Stanley Revell <i>a</i>	<i>Ellis, Mass.</i>	Zeta House.
Fitch, Harry Edward <i>e</i>	<i>Manchester.</i>	Prof. Parsons'.
French, Edward Daniel <i>e</i>	<i>South Hampton.</i>	South Hampton.
Hardy, Harold Elwin <i>a</i>	<i>Hollis.</i>	Beta House.
Hefler, George Burpee <i>e</i>	<i>Jackson.</i>	Pettee Block.
Hoyt, Simes Thurston <i>e</i>	<i>Newington.</i>	Beta House.
Kidder, Walter Dennis <i>e</i>	<i>Manchester.</i>	Delta Hall.
Langelier, Wilfred W. <i>e</i>	<i>Nashua.</i>	Zeta House.
Leonard, James Mortimer	<i>Woodsville.</i>	Kappa Sigma House.
McKone, Frank E. <i>e</i>	<i>Dover.</i>	Dover.
Lawrence, Cheney E. <i>e</i>	<i>Nashua.</i>	Kappa Sigma House.
Morrison, Leonard S. <i>g</i>	<i>Penacook.</i>	Pettee Block.
Neal, Haldimand W. <i>e</i>	<i>Dover.</i>	Zeta House.
Neal, Robert Abbott <i>e</i>	<i>Dover.</i>	Zeta House.
Parker, William Brackett <i>g</i>	<i>Portsmouth.</i>	Kappa Sigma House.
Peel, Charles Edward <i>c</i>	<i>Nashua.</i>	Beta House.
Perkins, Clement Linwood <i>c</i>	<i>Berwick, Me.</i>	Kappa Sigma House.
Philbrook, Henry Brown <i>e</i>	<i>North Hampton.</i>	Mr. Sawyer's.
Read, Harold Clifford <i>e</i>	<i>Westport.</i>	Pettee Block.
Reynolds, Clearton Howard <i>c</i>	<i>Middletown, N. Y.</i>	Mr. Schoonmaker's.
Scammon, Raymond Brewster <i>e</i>	<i>Stratham.</i>	Stratham.
Scott, Bessie Amanda <i>g</i>	<i>Tyson, Vt.</i>	Miss O'Hearn's.
Swan, Clyde Henry <i>e</i>	<i>Keene.</i>	Zeta House.
Sanborn, Edson Dana <i>a</i>	<i>Fremont.</i>	Zeta House.

SOPHOMORES (*Continued.*)

Name.	Residence.	Room.
Tenney, Harry William <i>e</i>	<i>Newport.</i>	Mr. Schoonmaker's.
Thorp, Theron Alberto <i>e</i>	<i>Exeter.</i>	Mr. Hayes'.
Towne, Ernest George	<i>Thornton.</i>	Mr. Sawyer's.
Upton, Hiram D. <i>a</i>	<i>Manchester.</i>	Prof. Parsons'.
Wells, Burleigh Ray <i>e</i>	<i>Somersworth.</i>	Kappa Sigma House.
Wentworth, Stephen Neal <i>c</i>	<i>Rochester.</i>	Delta Hall.
Wood, Chester Loring <i>u</i>	<i>Dudley, Mass.</i>	Greenhouse.
Wyman, Horace Chester <i>a</i>	<i>Manchester.</i>	Zeta House.

FRESHMEN.

Name.	Residence.	Room.
Abbott, Harold Vincent	<i>Derry.</i>	Mr. Edgerly's.
Bachelor, John Hutchins	<i>Concord.</i>	Pettee Block.
Bennett, Leland Wilson	<i>Laconia.</i>	Mr. Edgerly's.
Brackett, Thomas James	<i>Greenland.</i>	Mr. Sawyer's.
Branan, Glen Woodhul	<i>Albany, N. Y.</i>	Mr. Edgerly's.
Brown, Albert Huckins	<i>Strafford.</i>	Mr. Edgerly's.
Brown, Charles Owen	<i>Concord.</i>	Mrs. Morgan's.
Brown, Robert Elsmere	<i>Marlborough.</i>	Mr. Stevens'
Burbeck, Perry James	<i>Haverhill.</i>	Pettee Block.
Carpenter, Roy Elbert	<i>Medford, Mass.</i>	Pettee Block.
Chandler, Harry Merton	<i>North Chatham.</i>	Mr. Schoonmaker's.
Colby, Arthur Samuel	<i>Tilton.</i>	Pettee Block.
Converse, Henry Thomas	<i>Amherst.</i>	Mr. Sawyer's.
Davis, John Worthen	<i>Concord.</i>	Mr. Schoonmaker's.
DeMeritt, Margaret	<i>Durham.</i>	Mr. A. DeMeritt's.
Drew, Lucy Abby	<i>Colebrook.</i>	Miss O'Hearn's.
Drew, Mariette Alice	<i>Colebrook.</i>	Miss O'Hearn's.
Easterbrook, Ralph Lewis	<i>Dudley, Mass.</i>	Mr. Stevens'.
Fisher, Frank Gordon	<i>Woburn, Mass.</i>	Mr. Edgerly's.
Gaddas, Sumner Felt	<i>Hillsborough Bridge.</i>	Mrs. Sanders'.
Gove, Willis Ansel	<i>Gilford.</i>	Mr. Edgerly's.
Hall, William Leslie	<i>Orleans, Mass.</i>	Mr. Schoonmaker's.
Hargreaves, Frederick Forest	<i>Nashua.</i>	Pettee Block.
Hatch, Olive Estelle	<i>Dover.</i>	Dover.
Hoben, Frank M.	<i>Concord.</i>	Zeta House.
Holmes, Harry Wesley	<i>Northwood,</i>	Delta Hall.
Jennings, Earle B.	<i>Winchester.</i>	Mr. Burnham's.
Judkins, Henry Forrest	<i>Kingston.</i>	Kingston.
Kemp, Charles Willis	<i>Kingston.</i>	Kingston.
Kennedy, Frank P.	<i>Dover.</i>	Mr. Schoonmaker's.

FRESHMEN (*Continued.*)

Name.	Residence.	Room.
Lane, Arthur Seavey	<i>Kittery, Me.</i>	Beta House.
Little, Webb	<i>Campton Village.</i>	Mr. Schoonmaker's.
Locke, Charles Hubert	<i>Manchester.</i>	Pettee Block.
McLucas, Charles Abraham	<i>Nashua.</i>	Pettee Block.
McGrail, Frederic Richard	<i>Nashua.</i>	Zeta House.
Martin, Harold S.	<i>Hinsdale.</i>	Mr. Edgerly's.
Morrill, Winfred	<i>Pike.</i>	Pettee Block.
Nason, Carl Eastman	<i>Concord.</i>	Mr. Burnham's.
Parker, Edward G.	<i>Portsmouth.</i>	Miss O'Hearn's.
Parker, William Folger	<i>Goffstown.</i>	Mrs. Sanders'.
Parsons, Charles Lathrop, Jr.	<i>Durham.</i>	Prof. Parsons'.
Pease, Bret	<i>Ashland.</i>	Mrs. Sanders'.
Pierce, Leonard Emerson	<i>Worcester, Mass.</i>	Pettee Block.
Piper, Robert Clark	<i>Stratham.</i>	Stratham.
Proud, Benjamin Franklin	<i>Manchester.</i>	Mr. Schoonmaker's.
Proud, Brenton	<i>Manchester.</i>	Kappa Sigma House.
Quimby, Waldo Hutchinson	<i>Concord.</i>	Mr. Burnham's.
Roberts, George Filmore	<i>Alton.</i>	Pettee Block.
Robinson, Charles Harrison	<i>Marlborough.</i>	Mr. Stevens'.
Robinson, Lilla Maria	<i>Marlborough,</i>	Miss O'Hearn's.
Smart, Guy	<i>Rochester.</i>	Mr. Edgerly's.
Stark, Eldon Eugene	<i>Haverhill.</i>	Pettee Block.
Sughrue, Timothy George	<i>Nashua.</i>	Pettee Block.
Thompson, Robert	<i>Durham.</i>	Mr. L. Thompson's.
Townsend, Philip Nelson	<i>Lebanon.</i>	Mr. James'.
Tuttle, Harry Benjamin	<i>Atkinson.</i>	Pettee Block.
Warner, William Pearl, Jr.	<i>Plaistow.</i>	Plaistow.
Whittemore, Charles Farnum	<i>Pembroke.</i>	Mrs. Morgan's.
Wilkins, Aaron Wallace	<i>Amherst.</i>	Delta Hall.
Wright, Charles Shannon	<i>Portsmouth.</i>	Greenhouse.
Wright, Chesley Frank	<i>New Durham.</i>	Prof. Scott's.

TWO YEAR COURSE.

SECOND YEAR.

Name.	Residence.	Room.
Holmes, George Allen	<i>Langdon.</i>	Pettee Block.
Hunter, Ernest Melville	<i>Melvin Village.</i>	Mr. Hayes'.
Leavitt, Guy	<i>Sanbornton.</i>	Pettee Block.
Littlefield, Harold Thom	<i>Salem Depot.</i>	Pettee Block.
Parmenter, William O., Jr.	<i>Springfield, Mass.</i>	Pettee Block.
Colburn, Luther Dodge	<i>New Boston.</i>	Mr. James'.

TWO YEAR COURSE (*Continued.*)

FIRST YEAR.

Name.	Residence.	Room.
Hill, Claudian F.	<i>Wakefield.</i>	Pettee Block.
Martin, Leslie Chapin	<i>Chicopee, Mass.</i>	Mr. James'.
Melkonian, James	<i>Alton.</i>	Mr. A. Meserve's.
Sleeper, Almond Lufkin	<i>Exeter.</i>	Exeter.
Smith, Joseph Walker	<i>Worcester, Mass.</i>	Mrs. Morgan's.
Waite, Iru Merrill	<i>Goffstown.</i>	Mr. Sawyer's.
Woodbury, Sherman Perham	<i>New Boston.</i>	Mr. James'.

SPECIAL COURSE.

Name.	Residence.	Room.
Abbott, Walter Sidney	<i>Manchester.</i>	Miss O'Hearn's.
Arozian, Ohannes A.	<i>Nashua.</i>	Prof. Scott's.
Bunker, Eva	<i>Durham.</i>	Mr. J. Bunker's.
Hobbs, Elizabeth Kittredge	<i>No. Berwick, Me.</i>	No. Berwick, Me.
Lyons, John Clarence	<i>Beverly, Mass.</i>	
Nixon, William George	<i>East Brentwood.</i>	
Tredick, Helen F.	<i>Exeter.</i>	Exeter.

TEN WEEK COURSE.

Name.	Residence.	Room.
Armstrong, Maurice Greeley	<i>Windham.</i>	
Collins, Harold Dean	<i>Peterborough.</i>	
Cranshaw, Lawrence	<i>Lawrence, Mass.</i>	
Gilchrist, Eugene Fred	<i>Peterborough.</i>	
Greenwood, Burnie Hilton	<i>Enosburg Falls, Vt.</i>	
Harvey, Arthur Charles	<i>Bombay, N. Y.</i>	
Shute, Harry Frank	<i>Lancaster.</i>	

SUMMARY.

Seniors	26
Juniors	37
Sophomores	52
Freshmen	61
Students in Ten Week Course.....	7
Students in Two Year Course.....	13
Special Students	7
Total	203

FOUNDATION AND ENDOWMENT.

The New Hampshire College of Agriculture and the Mechanic Arts was incorporated by the state legislature in 1866, under the provisions of the act of Congress, approved July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," the grant of land having been accepted by an act of legislature, approved July 9, 1863.

The act of 1862 provides that the income from the investment of the money realized from the sale of the lands shall be appropriated "to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The "Morrill Bill," which was approved August 30, 1890, and received the assent of the state by an act of legislature, approved February 13, 1891, provides an appropriation for the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of "the act of 1862."

The appropriation under the Morrill act is "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

Under an act of Congress approved March 2, 1887, which received legislative assent August 4, 1887, was established that department of the college known as the Agricultural Experiment Station, the purpose of which was "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

Benjamin Thompson, who died January 30, 1890, was a resident of Durham, and a farmer by profession. He had at heart the agricultural interests of his native state, and in the furtherance of those interests he bequeathed to it at his death his whole estate with a few minor reservations.

Mr. Thompson's final statement of the object of his bequest was as follows: "My object being mainly to promote the improvement of agriculture, though willing that the college to be established should also provide for the mechanic arts, it is my will that the institution to be established by the state * * * shall be called and designated * * * The New Hampshire College of Agriculture and the Mechanic Arts, if that shall be the wish of the state; and that in addition to the instruction to be given therein, as provided by my said will, there shall be taught only such other arts or sciences as may be necessary to enable said state to fully avail itself of said donation of lands by the government in good faith, which two branches of instruction shall be the leading objects of said institution or college."

By the provisions of the will, the income from this source will not, however, become available until 1910. This endowment will amount at that time to nearly \$800,000, the annual income from which will be about \$32,000.

The state legislature accepted the Thompson bequest March 5, 1891, and on April 10th of the same year appropriated \$100,000 for buildings. Approximately \$50,000 was realized from the sale of property, and from other

sources. In 1893 an additional appropriation of \$35,000 was made by the state for completing and furnishing the buildings. Accordingly in 1893 the college was moved from its first home at Hanover to its present location at Durham.

The general government of the college is vested in a board of thirteen trustees. The governor of the state and the president of the college are trustees, *ex officio*; the alumni of the college elect one trustee; and all other trustees are appointed by the governor of the state, with the advice and consent of the council.

The college is executing the trust reposed in it by giving instruction in the various courses described in this catalog, under the prescribed heads of "agriculture" and "the mechanic arts."

GENERAL INFORMATION.

New Hampshire College offers the following courses:

1. Agricultural Courses.
 - a. Four-year course.
 - b. Two-year course.
 - c. Ten-week course.
2. Mechanical Engineering Course.
3. Electrical Engineering Course.
4. Chemical Engineering Course.
5. General Course.

The college is a part of the public school system of the state. It stands, in its agricultural, mechanical engineering, electrical engineering, technical chemistry, and general scientific courses, in the same relation to the high schools that the high schools stand to the grammar schools, and that these in turn stand to the elementary schools. In other words, it is a continuation of the grades of the public school system of the state, with special reference to the industrial pursuits, and, in the courses that are provided as described elsewhere in this catalog, it aims to give a practical training that shall fit the student to deal with the problems of life.

TUITION.

The tuition fee is \$60 per year, although numerous scholarships give free tuition to many New Hampshire students.

SCHOLARSHIPS.

Conant Scholarships.—There are twenty-five Conant scholarships, each paying \$40 and tuition, \$60—total, \$100. These are to be assigned under the following conditions:

1. They are to be given to young men taking an agricultural course.

2. Each town in Cheshire County is entitled to one scholarship, and Jaffrey is entitled to two.

3. Scholarships not taken by students from Cheshire County, and those in excess of the number of towns, will be assigned to agricultural students, and may be divided at the discretion of the president.

Senatorial Scholarships.—There are twenty-four senatorial scholarships,—one for each senatorial district. Each scholarship is to pay tuition, \$60. Senatorial scholarships not filled can be assigned to students from other localities at the discretion of the faculty; they are open to students in all courses.

Early application should be made for these scholarships. They will be reserved for those respective towns and districts until August 1 of each year, after which they may be otherwise assigned for the year.

These scholarships are given for the purpose of aiding deserving students, and will be withdrawn from those who use tobacco or intoxicating liquors, or show themselves not deserving. Janitorships, work on the farm, etc., also furnish assistance to a considerable extent.

Valentine Smith Scholarships.—Through the generosity of the late Mr. Hamilton Smith of Durham, the sum of \$10,000 has been given to the college to establish the Valentine Smith scholarships.

“The income thus accruing to the college shall be given to the graduate of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission to the college; *provided*,

“That this income shall be paid to the student to whom it is awarded, in eight semi-annual payments, at the time appointed for the payment of term bills; and

“That if the student receiving this scholarship shall at any time prove unworthy, in the judgment of the faculty,

by reason of defective scholarship or character, he shall forfeit his claim to the student most deserving; and

“That if the student receiving this scholarship shall cease to be a member of the college, the income from this fund, for the unexpired term, shall be awarded to the student most deserving in character and scholarship.”

These scholarships yield \$400 annually or one hundred dollars to each holder.

Competitive examinations for this scholarship will be held at the college at the time of the entrance examinations in September, and at no other time.

Grange Scholarships.—Each subordinate and Pomona grange in New Hampshire has the privilege of appointing one student annually to a free scholarship in any of the four-year or two-year courses in the college, each appointment to be good for four years if in a four year course, and for two years if in a two year course. Students holding these scholarships will be relieved from paying the annual tuition fee of sixty dollars, but will not be relieved from payment of incidental or other fees. Scholarships may be forfeited at any time by misconduct of the student or by his failure in a sufficient number of studies, or by his inability to meet the entrance requirements. Women may hold these scholarships on the same terms as men.

The method of appointment is entirely at the option of the grange; it may be by election, competitive examination, or otherwise. Holders of grange scholarships must be residents of New Hampshire.

PRIZES.

I. *Bailey Prize.*—Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene, N. H., offer a prize of ten dollars for proficiency in chemistry.

II. *Erskine Mason Memorial Prize.*—Mrs. Erskine Mason, of Stamford, Conn., has invested one hundred dollars as a memorial to her son, a member of the class of 1893, the income of which is to be given, for the present, to

that member of the senior class who has made the greatest improvement during his course.

ESTIMATE OF EXPENSES.

Tuition,	Free	\$60.00
Text-books,	\$10.00 to	30.00
Military uniform for new students,	16.00 to	16.00
Drawing instruments and materials,	7.50 to	30.00
Fees*,	20.00 to	20.00
Room rent, including fuel,	30.00 to	50.00
Board, \$3 to \$3.50 per week, for thirty-five weeks,	105.00 to	122.50
Total,		\$188.50 \$328.50

Room rent is estimated on the supposition that two students occupy the same room or suite of rooms.

Rooms may be obtained either furnished or unfurnished. Most of the rooms are in suites, and are in buildings provided with heating apparatus and bath-rooms.

The college has no rooms for students.

For further information, address New Hampshire College, Durham, New Hampshire.

COURSES FOR WOMEN.

Women attending the college may elect any course laid down in the curriculum, subject to the conditions prescribed for all students. They may omit manual labor on the farm and in the shop, and substitute other studies.

The general course, with its electives, is specially prepared for women, and is so planned that special courses may be arranged in literature, languages, history, philosophy, pedagogy, drawing, biology and manual training.

The courses in agriculture and chemistry afford opportunities for the study of the natural sciences, and the engineering courses offer exceptional advantages in mathematics and physics.

*Includes all charges commonly considered extras, except those for breakage and damage to college property.

POST-GRADUATE STUDY.

The college offers opportunities for post-graduate study in agriculture, biology and chemistry.

After the satisfactory completion of an appropriate amount of post-graduate work, advanced degrees will be given.

SPECIAL STUDENTS.

Special students shall be admitted only by vote of the faculty. Any person of mature years (not a candidate for a degree) may be so admitted upon presenting satisfactory evidence of his ability to complete the desired course of study.

REGISTRATION.

All undergraduate students who desire to attend the college during a term are required to register at the registrar's office on or before 4 p. m. of the first day of such term. Every former student registered after the first day of any term shall be charged for such registration a fine of one dollar for the first day and fifty cents additional for each succeeding day, to be remitted only by the president upon presentation of a substantial excuse for the delay.

TERM BILLS.

Tuition and fees are payable in advance in two equal installments, one on the first day of the fall term, and the other on the first day of the winter term of each year. No student shall receive his registration card or attend classes until his term bills are paid.

ATTENDANCE.

All male students are required to attend military drill.

All students are required to attend chapel exercises. Students accumulating more than five unexcused absences from chapel during the fall term, more than three during the winter term, or more than three during the spring term, shall be placed on probation.

Attendance upon class work is, in general, under the control of the heads of departments concerned. However, excuses for absence for one day or more, may be obtained of the dean in advance, and should be passed to the registrar by the student not later than twenty-four hours after the termination of such absence. Excuses for absence less than one day should be obtained of the instructors concerned. If excuses are for an indefinite time, the student must report to the registrar within twenty-four hours after his return to his studies, if he wishes to receive credit for his excuses.

In no case will the excuse relieve the student from class work.

Any head of a department may, without faculty action, exclude from examination any student who has been absent from twenty per cent of the exercises of any class under his charge.

All classes shall begin at seven minutes after the hour scheduled, and close promptly at the end of the hour.

ELECTION OF STUDIES.

Every student shall, on or before the Saturday before the last in each term, notify in writing the secretary of the faculty of his elections for the term following. Any student, who, having made his elections, desires to change, shall make application to the faculty in writing, with a statement in full of his reasons.

Any student who fails to fill out his elective slip on or before the date mentioned, shall pay a fine of one dollar before he can be registered for the studies of the next term, unless he has previously obtained from the secretary of the faculty a written excuse for delay. No student shall be permitted to make changes in courses elected by him after one week from the time of his registration in each term, except by vote of the faculty and the payment of one dollar.

AMOUNT OF WORK.

No student shall be permitted to carry less than sixteen or more than twenty-one credit hours per week of classroom work or its equivalent, exclusive of military drill, without the consent of the faculty.

EXAMINATION ON ENTRANCE DEFICIENCIES.

Students conditioned on entrance examinations may have an opportunity to make up such deficiencies upon the three days preceding the beginning of the fall term, and upon the last Saturday of each term. A student who takes a deficiency examination upon an entrance subject, at any other time, must pay the college one dollar for each examination upon each subject.

Students who have any entrance condition outstanding at the beginning of the third year of residence at the college, or more than one at the beginning of the second year, will not be allowed to register until such conditions have been removed.

THESIS.

A thesis upon some subject connected with the work of the course taken is required of every candidate for a degree. The subject, together with a written approval of it by the head of the department within which it lies must be submitted to the president before the fifteenth day of December preceding graduation. The thesis shall be submitted to the head of the department concerned not later than the second Tuesday preceding commencement. The thesis must be completed in typewritten and bound form by the Tuesday preceding commencement and be in the hands of the department concerned. The thesis shall be typewritten or printed upon standard thesis paper 8½ by 11 inches, medium weight, neatly bound in black cloth and gilt-lettered on first cover with title, name of author, degree sought and year of graduation. This bound copy shall be approved by the faculty, filed and left with the college librarian.

GRADUATION.

Those who complete a four year course or its equivalent will be recommended for the degree of Bachelor of Science. No equivalent for one of the four year courses will be accepted which does not contain an average of at least 18 credit hours per term, in addition to military drill, for four years, and all of the required subjects of the first two years which are common to all of the four-year courses.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding commencement; and each member of the class may receive a statement of his standing at the office of the registrar at 2 p. m. on the next day, Wednesday. All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

SUNDAY SERVICES.

Although the only church in Durham is nominally congregational, it is attended by citizens of all denominations, and sectarian lines are never drawn. It is conveniently situated, and with its regular services, its Sunday-school, prayer-meetings and young people's meetings, it offers ample opportunity for religious observance.

SITUATION AND RAILROAD CONNECTIONS.

Durham is situated on the Western Division of the Boston and Maine Railroad, 62 miles from Boston, and about midway between Rockingham Junction and the City of Dover, being five miles from the latter place.

BUILDINGS.

THOMPSON HALL.

Thompson Hall, the main college building, has a length of 128 feet, exclusive of a *porte-cochère* 40 feet long, and a width of 93 feet in the widest part. It is built of granite and brick, and has three stories besides the basement.

The basement contains a blower-room, with apparatus for controlling the heating and ventilation of the building, geological laboratory, a lavatory, and rooms used for storage.

One half of the first floor is occupied by the mechanical and free hand drawing and machine design rooms. The remainder of the first floor is used for offices, recitation rooms for mathematics and history, and a waiting room for women.

On the second floor are more offices, the zoological laboratories and recitation rooms for biology, mechanical engineering, philosophy and modern languages.

On the third floor are the large hall used as an auditorium, two society rooms, and the bell-boy's room.

The building is lighted by gas and electricity, and provided with the most approved system of heating and ventilation.

LIBRARY BUILDING.

The library building, completed this year, was made possible by the generosity of Mr. Andrew Carnegie and by an act of consolidation whereby the college assumed the care of the Durham libraries and added to its building fund a sum of money which Mr. Hamilton Smith, late of Durham, provided for a public library building. It is a two-story

building, with a frontage of 75 feet and a depth of 65 feet, not including the stack extension, which gives shelving room for sixty thousand volumes. On the main floor are the delivery, reference, reading, and children's rooms and librarian's office. The second floor is to be used for seminar and lecture rooms. The stack room is fitted with a three-story stack, the second floor being on a level with the main floor of the library.

MORRILL HALL.

This building was erected in 1902 at a cost of about \$30,000. It is 110 feet long and 58 feet wide, comprising four stories, including the basement. It is plain and simple in outline, and gives the impression of strength and solidity. The material is brick, laid in Flemish bond, with trimmings of the clear, almost white Suncook granite. These relieve and brighten to a certain extent the general effect of plainness and simplicity. The roof is of slate, and the construction throughout is designed to give the greatest possible security against fire. All the partition walls are of brick, and the steam for heating is taken from the boilers at the central station, near the mechanical building. The Johnson system of automatic temperature regulation has been installed. Adequate ventilation is secured throughout the building by means of a large fan in the basement. All the floors are of maple, except the basement, which is cement. Only the ceilings of the rooms are plastered, the side walls being of bare brick, calcimined Indian red.

A vestibule, eight feet wide, runs through the center of the building the long way on each floor, except the fourth.

In the south end of the basement there is a room 56 by 32 feet, which is used for the exhibition of the different makes of agricultural implements and tools. The north end of the basement is fitted up for a live stock judging room. On the basement floor there are also a lavatory, provided with wash-stands and shower-bath, a bulletin mailing room, a soil-storage room, a fan and heating-room and a janitor's room.

The first floor is occupied by the department of agriculture and the agricultural experiment station library of over 1,000 volumes. It contains two class-rooms—one for agronomy and one for animal industry—a soil physics laboratory with a preparation room attached, the farm superintendent's room, and the offices of the professor and assistant professor of agriculture, and of the director of the agricultural experiment station.

The second floor is occupied by the horticultural department. It contains one class-room, a pomological laboratory, a forestry laboratory, a herbarium room, a horticultural and agricultural reading-room and the offices of the professor and assistant in horticulture. The second floor is also provided with a refrigerator room, in which the fruits and vegetables used for laboratory work may be preserved. Both the first and second floors are provided with fireproof vaults in which important records and expensive equipment are kept.

CONANT HALL.

Conant Hall contains the laboratories and lecture-rooms for instruction in chemistry, physics and electrical engineering. It is a substantial brick building, 92 by 70 feet, and three stories high, including the basement. It is heated by steam brought from the shops, lighted by gas and electricity and provided with a system of thorough ventilation. Water, gas, high pressure steam, hydrogen, oxygen, vacuum and blast are supplied through pipes wherever needed, and the lecture rooms in addition have switches controlling both dynamo and battery currents, and arrangements for stereopticon illustration.

The basement contains a small workshop, the battery, photometer, photographic and comparator rooms, a clock room protected by double walls against changes in temperature, an acid room and a water and gas laboratory provided with the necessary fixtures and appliances.

The first floor, with the exception of one room, is occupied by the department of physics and electrical engineering.

It contains the mineralogical laboratory, which is provided with tile-covered desks and other facilities for blowpipe analysis; the junior physical laboratory; an apparatus room; a department library of physical and electrical books and periodicals; an electrical laboratory; and the physical lecture room. For optical experiments the room can be darkened by means of special window shutters, operated from one of the lecture desks. A stone pier between the two desks makes it possible to use delicate instruments.

The second floor is given up entirely to the chemical department. It contains storerooms, an organic laboratory, a qualitative laboratory, a private laboratory, a dark room for polariscopic and spectroscopic work, a lecture-room provided with facilities as before described, a quantitative laboratory, and a room for the delicate chemical balances and most important reference works.

The laboratories are fitted up with modern accessories, and with special reference to the kind of work to be performed in each.

SHOPS.

These have been built in order to provide facilities for instruction in the working of wood and metals. The buildings are constructed on the "slow burning" principle, with thick walls, and heavy, continuous plank floors. The rooms are all well lighted and well ventilated.

The main building is 42 by 106 feet, and two stories high, with a basement 31 by 42 feet. The basement is used as an engine room and laboratory. The largest room on the first floor is the machine shop, where there is opportunity for practice in the operation of working metals by cutting tools, both by hand-work and by machinery. On this floor a lavatory is provided. The second floor is mainly occupied by a wood-shop, in which the common branches of carpentry, joinery and pattern-making are taught. Practice is given in the use of carpenters' tools and in the care and operation of the machines of most general use in wood-working.

Joined to the main shop building and on a level with its basement is a one-story building, 40 by 100 feet, containing the boiler room, forge shop and foundry.

There are four boilers, aggregating 240 horse-power, which furnish steam to all the college buildings, wherever needed for heating or power. A brick chimney, 95 feet high, carries away the waste gases from the furnaces.

In the forge shop instruction is given in forging, welding, tempering and riveting, and in the foundry the student is taught to mold and cast from the various patterns made in the wood-shop.

THE ARMORY.

The armory is a brick building with granite trimmings. The main building is 61x99. It has a headhouse, on each corner of which is a tower. One tower is battlemented and is three stories high, to correspond with the headhouse roof, and has a slated peak. The headhouse, or portion of the building nearest the street is 31x46. In the basement of the main building are two bathrooms, one 16x22, containing two shower baths to be used by the faculty and visiting teams. The other bathroom on this floor, size 12x16, is for the use of the students and contains five shower baths; adjoining this is a locker room, 28x30; a drying-room, 5x15; a toilet room, 8x12, and a room, 8x28, for gymnasium supplies. As this does not take up all the basement floor, there is a space, 37x52, reserved for a swimming pool, bowling alley, ball cage, etc., to be completed at some future time.

On the first floor of the main building is the drill hall or gymnasium, size 58x97, with a balcony in the second story, which furnishes a running track six feet wide.

On entering the building from the street, there is an office on the right, to be devoted to the uses of the professor of military science, one for the physical culture director, and a private office in the tower. To the left of the hallway is a military lecture room.

On the second floor of the headhouse are the College Club rooms, one 20x43, and the other 10x16. These are fur-

nished with billiard and pool tables; a piano presented to the college club by the college alumni association; easy chairs and window seats, all in mission style furniture.

The equipment of the gymnasium includes chest weights, dumb bells, Indian clubs, wands, bucks, horses, horizontal and parallel bars, traveling rings, ladders, punching bags, etc.

NESMITH HALL.

Nesmith Hall, a two-story brick building, is occupied by the chemical, botanical and dairy departments of the agricultural experiment station. It contains the offices, libraries and laboratories of the chemical and botanical departments and the office of the dairy department. The recitation room of the botanical department is also in this building.

DAIRY.

The dairy building is a wooden structure of one and one-half stories, with basement. It contains six rooms equipped for manual training in milk testing, milk and cream pasteurizing, cream ripening, butter-making and the care and management of dairy machinery.

The first floor is used for receiving milk and for the separators. On this floor is also the office of the instructor and the laboratory for milk testing. The basement contains the ripening vats, churns and refrigerators, together with the engine.

BARN.

The dairy barn is a large wooden structure, erected in 1895 at a cost of about \$10,000. The main portion is 45 by 100 feet, two stories high, and with a basement in which are box stalls, calf and sheep pens, a cold storage room, root cellar, feed, dressing and milk rooms. A story and a half L 35 by 100 feet, with basement, is attached to the main structure. The first floor of the L is on a level with the basement of the main barn and contains stalls to accommo-

date 56 head of cattle. The basement of the L contains pig pens, while the loft is used for the storage of feed, fertilizers and machinery. With the exception of the space occupied by a granary, a 120-ton silo and a 12-foot driveway, the upper floors of the main barn are used entirely for hay and forage, there being capacity for about 175 tons.

A second barn of old-style building is used by the agricultural department for the storage of hay, implements and wagons and for stabling the department horses.

A third barn, 25 by 60 feet, recently modeled, is used by the horticultural department for its horses and wagons and the storage of spraying machines and various garden implements.

GREENHOUSES.

The new range of greenhouses has been specially planned and built for carrying on modern and up-to-date work in greenhouse management and handicraft. There are seven distinct houses, besides a propagating hallway. Connected with the glass structure is a workroom, 20 by 30 feet, which also answers as an office for the florist, and is equipped with scales, seed-boxes and other accessories. The basement of the workroom, or potting house, is used for a boiler room and storeroom for potting soils. The attic has two good rooms, one of which is occupied by the greenhouse attendant. The whole system is heated by steam, the boiler being a Lord & Burnham Co. sectional. The houses are piped so that the temperature can be regulated for any kind of crop, and offer exceptional opportunities for experimental work. The main palm house and four of the lateral houses were built by the Lord & Burnham Co., greenhouse contractors, and are of steel superstructure. The other two, together with the passageways to the potting house, are constructed of cypress, with angle iron eaves plates and iron supports. One house is equipped for greenhouse management instruction and each student is given definite laboratory space and prescribed work. Two of the houses have ground beds and are adapted for forcing vegetables. The

remaining houses have raised beds, excepting the center of the palm house, which has a ground bed.

These houses are lighted with electricity and offer unusual facilities for instruction and experimentation. When students have completed the required greenhouse courses, they are prepared to take positions as florists or gardeners of estates, etc.

LABORATORIES AND EQUIPMENT.

AGRONOMY.

This department is provided with a collection of dried specimens of the different forage crops; the more important varieties of corn, wheat and oats; and with a large number of lantern slides, grass charts and other illustrative material. The soil physics laboratory is equipped with soil bins, a compacting machine, chemical and torsion balances, and various kinds of physical apparatus for the study of soils, including that for the determination of specific gravity and for the making of mechanical analyses.

The agricultural museum contains many of the latest models of the different makes of farm machinery, tools and appliances, including plows, cultivators, harrows, mowers, rakes, corn and grain binders, threshers, manure spreaders, different kinds of cattle ties and various makes of patent wire fences.

The college farm, with its 300 acres of land, has a variety of soils and soil conditions suited to the growth of nearly all the important farm crops, and thus offers excellent opportunities for practical work and demonstration in the department of agronomy.

ANIMAL INDUSTRY.

For the various courses in animal industry an extended use is made of the live stock of the college farm. The dairy herd consists of representative animals of the following breeds: Ayrshires, Guernseys, Jerseys, Holsteins and Short-horns. The college owns eight head of horses representing the draft type, and to become acquainted with the trotting

and thoroughbred types the students are taken to various stock farms where these types can be inspected and judged.

For the study of the different breeds of sheep and swine the college flocks of thoroughbred Southdowns, Dorset Horns, Shropshires, Hampshires, Lincolns and Merinos and herds of medium Yorkshires and Berkshires are used. Representatives of other breeds are rented for practical study and judging.

In the new agricultural building a large room has been fitted up for the judging of live stock, instruments for precise measurements are provided and score cards with a scale of points for each kind of animal are used.

The class-room is provided with a stereopticon lantern and a large collection of lantern slides is used to show the leading individuals of several breeds of live stock. The herd books of the several breeds are made use of in familiarizing the student with methods of tracing pedigrees and the practices of breeders' associations.

HORTICULTURE.

The facilities for instruction in the various lines of horticulture have vastly improved during the past few years. The entire second floor of Morrill Hall is given up to this department and contains offices, lecture-rooms, laboratories, herbarium room, seminary and library room, and a cold-storage room. On the basement floor this department has also in conjunction with the agricultural department a photograph room, soil and carpenter's room, and an implement room. The lecture room is fitted up with a stereopticon lantern. The pomological and vegetable gardening laboratories are of original design and offer every facility for modern work. During the fall term over 100 varieties of apples are studied by the students. Grapes and pears are received from western New York, and other fruits, apples in particular, from Pennsylvania, West Virginia, New York, Ohio, Minnesota, Oregon, various parts of New England and Canada. Large numbers of varieties of vegetables are grown in

the experiment station trial grounds, and these offer exceptional opportunities for identification and study in the laboratory for some time after field conditions have gone by. The orchards, gardens and grounds also offer opportunities for demonstrating the theories advocated in the lecture-room. Many varieties of different kinds of fruits are to be found in the orchards. These are young, but coming into bearing. The plum orchard has 60 varieties in bearing. Grapes, peaches, apples, cherries and small fruits are also grown at the agricultural experiment station. Propagation of fruits, shrubs and flowering plants is practised. A fine collection of Vilmorin charts is owned by the department. The collection of lantern slides is continually being enlarged.

COLLEGE FOREST.

A tract of 60 acres of old forest growth is owned by the college. It is located close at hand and offers ample opportunities for studying forestry. The country about Durham presents forestry conditions typical of New England, and the transplanting of trees, sowing of seeds and general questions of forestry management may here be studied in Nature's laboratory.

DAIRY.

All available space in this building is filled with various forms of cream separators, churns, testing apparatus and other dairy appliances. Steam is supplied by the large boilers at the power-house. In addition to the product of the college herd, milk is received from about 25 farms in Durham and vicinity. Through this arrangement the college is able to furnish plenty of milk for practice work and to provide for a most thorough and practical training in dairy and creamery management.

MECHANICAL ENGINEERING.

The basement and westerly rooms of the main shop building are used as engine room and mechanical laboratories

and contain a 40 horse-power engine which furnishes power for the shops and electric lighting of the college buildings; a shaft-governor, slide-valve engine; a direct acting steam pump; and a large compound duplex pump. This pump receives water under a head of 15 feet through an eight-inch pipe from a reservoir one-half mile distant, and forces it through underground mains to the various hydrants and buildings or through nozzles for measurements during tests. It is fitted with indicator motions and other necessary equipment for complete duty tests. The pump with its long supply pipe, a 10-inch standpipe and a 6,000-gallon tank, furnishes apparatus for an extensive series of hydraulic experiments.

Among other apparatus is a 50,000-pound Olsen machine with the necessary tools and measuring instruments for tension, compression and transverse tests; a 12 horse-power gas engine; a marine gas engine; a Westinghouse air-brake pump with locomotive and tender attachments; steam and gas engine indicators; a surface condenser, with a capacity of 2,000 lbs. per hour, fitted with a $5\frac{1}{2} \times 8 \times 7$ air pump; Bristol pyromoter reading to 2,800 degrees F.; Pitot tubes; differential gauges; cement testing machine with the necessary sieves and other apparatus for testing cement according to the recommendations of the committee for cement testing; and the usual supply of scales, gauges, thermometers and small apparatus. The three sectional boilers and the 66" return tubular boiler, with the 95 ft. brick stack are used for boiler tests and flue gas analysis, by means of the Orsat apparatus, pyrometers and thermometers reading to 1,000 F. The 66" boiler is also fitted with two forms of forced draught apparatus thus giving an opportunity for commercial tests with different grades of fuel, especially the cheaper grades. The ventilating fans and engines of the various buildings as well as the engines at the creamery, electrical laboratory and barn are available for testing. Opportunity is not only given for the student to test the engine or machine but to become familiar with its construction and operation.

In addition to the instruction given in the laboratory, excursions are made to various outside power plants, and when practicable, tests are made, thus enabling the student to become familiar with various types of engineering practice. Each year the proprietors of a nearby mill allow the class in valve gears to take exercises in valve setting on their 50 horse-power Corliss engine.

WOOD-SHOP.

This occupies the larger part of the second story of the main building. It is supplied with benches and the necessary tools to accommodate 20 students at one time. Other equipment consists of a circular saw, board-planer, buzz-planer, jig-saw, speed-lathes, a large pattern maker's lathe with molding and boring attachments. A stock and pattern room on the same floor provides storage for lumber, patterns and unfinished work. The course in woodwork consists of practice in carpentry, joinery, cabinet-making and turning. Much of the advanced work consists of making apparatus and cabinets for use about the college. Following this work is the course in pattern-making, special attention being given to methods of design.

MACHINE SHOP.

The equipment is as follows: seven engine lathes, a 14-inch by 6-foot speed-lathe, built by students; a vertical drill, built by students; a 30-inch Flather planer; a universal milling machine with gear-cutting and spiral attachments; shaper; power hack saw; 12 benches with vises, and a large number of small tools, including micrometer, calipers and gauges necessary for accurate work. The lathes in the wood-shop were built here, and several more are in process of construction.

FORGE SHOP.

This contains 13 Sturtevant down-draft forges with anvils and necessary tools. The blast to the forges is fur-

nished by a No. 4 blower, and the smoke carried away by a 60-inch exhauster. These are driven by a 3 by 5 vertical engine. The student is taught the principles of forging, welding and tempering of iron and steel. Special attention is given to accuracy of dimensions as well as of shape and finish.

FOUNDRY.

The foundry is supplied with a furnace, molding benches, flasks and bench tools. Foundry work is taken in connection with the course in pattern making, and the student molds and casts from the patterns he has constructed in the wood-shop. Castings are made in iron, brass and alloy, and tests are made on "test bars" of each.

PHYSICS AND ELECTRICITY.

The physical laboratory has a collection of the usual apparatus for laboratory work and lecture-room illustration, to which will be continually added pieces purchased or made in the college shop.

In the junior laboratory of physics there has been added apparatus for studying absorption phenomena and the comparison of spectra of films, liquids, metals, etc.; for measuring the angles of crystals and indices of refraction; for verifying the laws of refraction and total reflection of light; for determining the moment of inertia of various forms of specimens.

In electricity and magnetism and electrical engineering the equipment includes instruments such as a magnetometer for studying the intensity of the earth's magnetism; a universal tangent galvanometer capable of assuming a variety of forms and measuring currents from a small fraction of an ampere to one hundred amperes; a high grade, four-spool Thomson reflecting galvanometer; D'Arsonval galvanometer; a Ryan electrometer for tracing pressure and current waves; a standard ballistic galvanometer; an Ayrton & Perry's variable standard of self-induction, as well as others of less accuracy for elementary

work; a complete photometer equipment for comparing incandescent and arc lamps, and the distribution of light from the latter for both open and inclosed arcs and when used with different forms of reflectors; two Edison bipolar 3 K. W. generators; one Edison bipolar 15 K. W. generator; one G. E. 4 pole 15 H. P. generator, all fitted with slip rings so as to furnish either or both direct and alternating currents, or be used as motors; a small, low-potential testing unit, consisting of a universal alternator belted to a direct current motor and capable of adjustment to be driven from either the direct or alternating side; a low-potential transformer, either side arranged to be connected to the universal alternator or to the secondary of the transformer on the lighting system or to the above mentioned generators, any one of which may be driven at any speed by one of the others run as a motor; a bank of lamps for illustrating the various methods of distributing from mains for lighting systems, or affording loads in obtaining characteristics, efficiencies and standard forms of voltmeters and ammeters, power factor meters, phase indicators, etc.

For more strictly electrical engineering work, the department has available the 500-light alternator used in lighting the college buildings.

In the dynamo laboratory the Westinghouse junior engine is capable of developing about 23-brake horse power under 100 pounds steam pressure. This engine, being on a practically independent line of steam pipe, maintains an extension of its own shaft serves to drive the different dynamos by means of endless belts. The workshop is equipped with a good set of wood and metal working tools, and a 14-inch, 8-foot bed Flather engine lathe, with complete attachments; also, a small speed lathe for drilling and wood working purposes, a Union combination saw with scroll, moulding and boring attachments, a small hand-driven metal planer and a sensitive drill. This shop is furnished with a motor for driving its main shaft and countershafts.

CHEMISTRY.

The several chemical laboratories are modern in design, commodious and well equipped. Each is supplied with the latest forms of apparatus required for its particular work. Besides all necessary glass and porcelain ware, this includes water baths, drying ovens, combustion, muffle and assay furnaces, platinum dishes and crucibles, polariscope, spectroscope, balances, lantern and other lecture appliances, etc.

ZOOLOGY.

The zoological laboratory is well supplied with aquaria, microscopes, dissecting tools, charts, reference books and collections. The latter include a representative display of the birds of New Hampshire, and a very large collection of the insects of the state arranged in glass-covered boxes. New tables have recently been added to the equipment of this laboratory.

BOTANY.

The botanical laboratory is supplied with a good herbarium, microscopes and the other necessary appliances.

SURVEYING.

The surveying instruments are sufficient in number and of the most approved pattern.

DRAWING.

One-half of the entire first floor in Thompson Hall is devoted to the use of the drawing and machine design department. For free-hand model-drawing and for mathematical drawing there is a good supply of geometric models; and for free-hand industrial drawing the nucleus of a good collection exists, consisting of plaster casts of historic ornament, details of human form and antique sculpture, as well as vases and common objects. There is an excellent collection of working models and machines for machine

drawing and various machines in other departments are available for this work.

There is a good working library connected with this department, including reference books in mechanical and free hand drawing and elementary and machine design.

MUSEUM.

The museum had for a nucleus the collections made during the state geological survey. To this additions have been made from various sources. Many specimens are being collected to illustrate zoölogy, especially entomology.

LIBRARY.

In accordance with an act of consolidation between the libraries of Durham and the college, the books of the Durham public library and the college are all shelved in the new building just completed for that purpose. This consolidation makes an especially good collection, the scientific books of the college supplementing well the more popular books of the town library. The consolidated libraries number about 20,000 bound volumes and 5,000 pamphlets.

In the reading room are to be found all the leading American and foreign periodicals, local, Boston and New York daily papers.

In the reference room are shelved about 2,000 bound volumes, which give good opportunity for reference and research work. There is also provision for the future in the second story rooms, which can be used for department libraries when the reference room proves inadequate.

Aside from the main library, each department has its departmental library of the more technical books and those which are of special use in the laboratories and work-shops.

FOUR YEAR COURSES.

AGRICULTURAL COURSE.

This course is arranged especially for the general education and scientific training of students to fit them in various economic branches, such as agronomy, animal husbandry, biology, agricultural chemistry, entomology, forestry, horticulture, veterinary science, etc. Graduates are supposed to be qualified to take positions such as farm superintendents, foremen, stock raisers, dairy farmers, creamery managers, dairymen, superintendents of estates, parks or cemeteries, fruit-growers, gardeners, florists, nurserymen, landscape gardeners, foresters, poultrymen, ranchmen, etc.

It is expected that these same men will be equally prepared, depending upon individual tastes, to take positions as teachers and assistants in colleges and experiment stations.

The aim is to give a broad general foundation of pure and applied science. Laboratory methods are used in connection with lecture and recitation work. Seminary courses are also given, especially for seniors and advanced students.

BIOLOGICAL DIVISION OF THE AGRICULTURAL COURSE.

The biological division of the agricultural course is for the benefit of those students who desire to make a special study of some phase of natural history. It leads to such positions as teachers of botany and zoology in high schools and colleges, entomologists for experiment stations, state inspectors of nursery grounds, etc. During the first two years the student pursues the regular studies of the agri-

cultural course, but in his junior year he begins to specialize in botany and zoology, a considerable proportion of his time during the rest of his course being given to these subjects. Students taking this course will elect, with the advice of the instructors in charge, six hours per week of biological work in the junior year and seven hours per week during the senior year, exclusive of thesis. Two years of German are required.

CHEMICAL DIVISION OF THE AGRICULTURAL COURSE.

The work of this division is especially intended to give a thorough grounding in the principles of chemistry as applied to agriculture and agricultural chemical analyses, and to train the student thoroughly in all kinds of manipulation required of the chemist in experiment stations, large dairy establishments, fertilizer works, etc.

Instruction is given mainly by personal supervision in the laboratory, accompanied by lectures, themes, recitations; and, as in the course in technical chemistry, the studies are arranged to meet the needs of the individual. Students wishing to take this course will elect, with the advice of the instructors in charge, six hours per week of chemical work during the junior year, and seven hours per week during the senior year. Two years of German are required.

COURSE IN MECHANICAL ENGINEERING.

Mechanical engineering is concerned with the design, construction, care and operation of machinery.

The special studies are: mathematical, including a large amount of drawing; technical, pertaining directly to the professional work of the engineer; and general.

The study of the scientific principles underlying the work of the engineer is accompanied throughout the course by actual practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, chemical and physical laboratories.

ELECTRICAL ENGINEERING COURSE.

The electrical engineering course is intended to meet the demands of a young man fitting himself for practical and professional engineering, in connection with the various applications of electricity.

By means of lectures, recitations and laboratory work, the subjects of the course are brought to the attention of the student in such a manner as to emphasize not only the present needs of the practitioner and engineer, but to give him the groundwork that will enable him to grasp and understand the constantly increasing number of problems that require solution.

The instruction aims to impart a complete practical and theoretical knowledge of the best modern types of electrical machines and appliances and the methods of designing, building and operating them.

The rapid progress in recent years in applying electricity to commercial uses, renders it difficult, if not impossible, for one without a technical education to gain prominence and be intrusted with its more responsible positions.

COURSE IN CHEMICAL ENGINEERING.

This course is intended to fit for the career of a professional chemist or chemical engineer, and to give a good foundation for original and independent chemical research.

Instruction is imparted by lectures, recitations and a large amount of carefully supervised laboratory work. The laboratory course is largely an individual one, and the work of each student is conducted with reference not only to the particular object he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a thorough training in German and French, to enable him to read with ease the chemical literature; a thorough grounding in mathematics, necessary for advanced theoretical chemistry or chemical engineering; a somewhat limited amount of special engineering work,

both mechanical and electrical; and a thorough undergraduate training in theoretical and applied chemistry. He is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference works and chemical periodicals which the library contains. Owing to the fact that the laboratories are becoming overcrowded the number of students taking this course is limited to six in each class. These six are chosen in the early part of the sophomore year from among those who have applied. Fitness to become successful chemists will alone determine the choice made.

GENERAL COURSE.

The general course in its original form was established in response to the demand that special provisions should be made for women. It has been broadened and improved by additional studies, and by an extensive scheme of elections, until in its present form it offers to either men or women "a liberal education upon a scientific basis."

MILITARY DEPARTMENT.

This department is in charge of an officer of the United States regular army, detailed by the war department, as professor of military science and tactics. Military instruction, which is required by law, is both theoretical and practical, the latter largely from September to December 1st and from April 1st to June, the former having special reference to the duties of the line.

The organization is a battalion of three companies with a band, officered by cadets selected for character, soldierly bearing and efficiency. The federal government has furnished Krag-Jorgenson magazine rifles, model 1898, and equipment for 200 men. Attention is paid to rifle practice, the government supplying ample ammunition and target materials, and the college a good range, with firing points at 200, 300 and 500 yards. The rolling country in the vi-

cinity of the college furnishes the best opportunities for extended order drill and field exercises, the athletic field for close order drills and the new gymnasium and drill shed gives ample room for indoor work.

The cadets wear, whenever on military duty, and may at other times, provided the complete uniforms are worn, cadet gray uniforms with black trouser stripes, black braid on cuffs and collars of blouses and blue caps, army regulation. The letters N. H. C. are embroidered in gold on each side of blouse collar. The cost of such a uniform does not exceed \$16 and the wearing of such does away with the necessity of purchasing a civilian suit for college use.

Service in this department is optional for members of the senior class; all other students, excepting those presenting surgeon's certificates of disability, are required to attend both drills and recitations.

Upon the graduation of each class, the names of such students as have shown special aptitude for military service are reported to the adjutant-general of the army and to the adjutant-general of the state. The names of the three most distinguished students in this department are inserted in the United States army register.

REQUIREMENTS FOR ADMISSION TO FOUR YEAR COURSES.

All candidates for admission to college must present satisfactory testimonials of good moral character.

Candidates for admission to the freshman class must offer studies amounting to a total of 14 units.

AGRICULTURAL COURSE.

Candidates for admission who intend to take the Agricultural Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group A.....	3 units
B (American History or Ancient History)	1 unit
C..... (Algebra and Plane Geometry)	2 units
D..... (Physics and Biology)	2 units
E..... (French or German)	2 units
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/>
	10 units
	(Optional) 4 units

GENERAL COURSE.

Candidates for admission who intend to take the General Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group A.....	3 units
B (American History or Ancient History)	2 units
C..... (Algebra and Plane Geometry)	2 units

D.....	(Physics)	1 unit
E.....	(French or German)	2 units
		<hr/>
		10 units
(Optional)		4 units.
		<hr/>
Total		14 units

ENGINEERING AND CHEMICAL COURSES.

Required Group A.....		3 units
B (American History or Ancient History)		1 unit
C (Algebra, Plane and Solid Geometry)		3 units
D.....	(Physics)	1 unit
E.....	(French or German)	2 units
		<hr/>
		10 units
(Optional)		4 units
		<hr/>
Total		14 units

GROUP A.

English.—The New England College Entrance Requirements in reading and study,—three periods a week for four years.

Reading and Practice. Each candidate will be required to present evidence of a general knowledge of the substance of the books mentioned below and to answer simple questions on the lives of their authors. The examination will usually be the writing of one or two paragraphs on each of several topics. The treatment of these topics is designed to test the power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of this test the candidate may present an exercise book, certified by his instructor, containing compositions or other written work done in connection with the reading of the books.

In 1908 it will be based upon: Shakespeare's *Macbeth* and *The Merchant of Venice*; The *Sir Roger de Coverley*

Papers in *The Spectator*; Irving's *Life of Goldsmith*; Coleridge's *The Ancient Mariner*; Scott's *Ivanhoe* and *The Lady of the Lake*; Tennyson's *Gareth and Lynette*, *Lancelot and Elaine*, and *The Passing of Arthur*; Lowell's *The Vision of Sir Launfal*; George Eliot's *Silas Marner*.

Study and Practice. This part of the examination presupposes a careful study of the works named below. The examination will be upon subject-matter, form and structure; and will also test the candidate's ability to express his knowledge with clearness and accuracy.

In 1908 it will be based upon: Shakespeare's *Julius Cæsar*; Milton's *L'Allegro*, *Il Penseroso*, *Comus*, and *Lycidas*; Burke's *Speech on Conciliation with America*; Macaulay's *Essay on Milton and Life of Johnson*.

—3 units.

GROUP B.

The work offered for each unit in History must consist of at least three exercises per week during one year of the high school course. In case two years have been given to Grecian and Roman History, either with or without other Ancient History, credit will be given for two units. For details of preparatory work in History reference is made to "A History Syllabus for Secondary Schools, by the New England History Teachers' Association." Boston, D. C. Heath & Co., 1904.

1. American History and Civics.

The History requirements are covered by Channing's *Students' History*, by Montgomery's *Students' History*, or by Hart's *Essentials*, with the collateral work. The work in Civics must include at least a knowledge of the Constitution of the United States.

2. Ancient History.

Wolfson's *Essentials* or an equivalent, with the collateral work, or, the *History of Greece* and the *History of Rome* as given in works like Myers' *History of Greece*, Morey's *Outlines of Greek History*, Allen's *Roman People*, Myers' *Rome* and Morey's *Out-*

lines of Roman History. The requirements are limited to Grecian History and Roman History to A. D. 476.

—1 unit.

3. English History.

The amount of English History required is represented by Gardiner's Students' History, by Larned's or Montgomery's History, or by Walker's Essentials, with the collateral work.

—1 unit.

4. Mediæval and Modern History.

Harding's Essentials of Mediæval and Modern History with the collateral work, or Myers' Mediæval and Modern History, or an equivalent.

—1 unit.

GROUP C.

Algebra through quadratic equations, including radicals and fractional and negative exponents, and Plane Geometry.

—2 units.

SOLID GEOMETRY.

The equivalent of Wells' presentation.

—1 unit.

PLANE TRIGONOMETRY.

The equivalent of Wentworth's presentation.

—1 unit.

GROUP D.

PHYSICS.

The preparation required for entrance in Physics shall be an equivalent of 75 class exercises; one hour each in length.

When certificates are offered, they should state the number of exercises and time allotted to each exercise.

—1 unit.

BIOLOGY.

COURSE 2. Students in the Agricultural Course must present either

A. Zoology.

Kellogg's Elementary Zoology, Linville and Kelly's Text book in General Zoology, Jordan and Kellogg and Heath's Animals, Needham's lessons in Zoology, Coulton's Zoology, or an approved equivalent, occupying at least three periods per week for a half year, at least one of which is devoted to laboratory work.

—½ unit.

and Botany.

Bergen's Elements of Botany, or an approved equivalent, occupying at least three periods per week for a half year, at least one of which is devoted to laboratory work.

—½ unit.

or

B. Botany.

Coulter's Text Book of Botany, Bergen's Foundations of Botany, or an approved equivalent, occupying at least three periods per week for one year, at least one of which periods is devoted to laboratory work.

—1 unit.

GEOLOGY.

COURSE 3. Leconte's Compend or an approved equivalent.

—½ unit.

CHEMISTRY.

COURSE 4. Elementary Inorganic Chemistry equivalent to the work covered in Remsen's Briefer Course, Storer & Lindsay's Manual, Witham's Elements or Newell's Descriptive Chemistry, accompanied in each instance with laboratory practice.

—1 unit.

Accompanying the certificate for each of the sciences the student must present at entrance a note-book containing records and drawings of his or her observations and experiments in the laboratory, which must bear the certificate of the teacher in charge that the work was done personally in the laboratory.

GROUP E.

It is expected that the student will give two years to the preparation of the language offered. The requirements are as follows:

In German the student will be held responsible for the conjugations of strong and weak verbs, the declensions of articles, nouns, adjectives and pronouns, the elements of syntax, the uses of the modal auxiliaries and the translation from English into German of simple connected passages based on one of the books read. More attention, however, is paid to the translation from German into idiomatic English. The student should read at least 200 pages of German prose. The following books are recommended:

1. Collar's First Year German (Ginn & Co.); Kaiser and Montesser's Brief German Course (American Book Co.); Huss, German Reader (D. C. Heath & Co.); Andersen, Märchen; Brandt, German Reader; Lange's Beginners' German Book (Allyn & Bacon); Carruth's German Reader (Ginn & Co.); Stern's Geschichten vom Rhein (Com. Bk. Co.).

2. Hillern, Höher als die Kirche; Riehl, Der Fluch der Schönheit; Storm, Immensee; Baumbach's Der Schwiegersohn; Gerstäcker, Irrfahrten; Heine, Die Harzreise; Freytag, Aus dem Staat Friedrichs des Grossen.

—2 units.

In French the applicant is expected to be familiar with the whole subject of French grammar, and to be able to translate from English into French simple connected passages based on one of the books read. More attention, however, is paid to the translation from French into idiomatic English. The student should read at least 400 pages. The following books are recommended:

1. Fraser & Squair's French Grammar (Heath); Laboulaye, Contes Bleus (Heath); Colin, Contes et Saynètes (Ginn & Co.); Super, French Reader; Rollins, French Reader (Allyn & Bacon); Aldrich & Foster's French Reader (Ginn & Co.); Bruno's Le Tour de la France (American Book Co.).

2. Halévy, L'Abbé Constantin; Mérimée, Colomba; Erckmann-Chatrian, Le Conscrit de 1813; Dumas, La Tulipe Noire; Daudet, La Belle Nivernaise; Berthet, Le Pacte de Famine; Sand, La Mare au Diable.

—2 units.

GROUP F.

Students entering from approved schools may receive credit in their certificates for the following work in Latin or Greek.

LATIN.

Grammar and four books of Cæsar. Two years' work.
—2 units.

Vergil, six books.

Cicero, six orations. —2 units.

GREEK.

Books I and II of Xenophon's Anabasis, Books III and IV of the Anabasis or their equivalent in other Attic prose, and 1,500 lines of Homer. —2 units.

In place of examinations, certificates will be received from approved preparatory schools, including all that have been approved by the superintendent of public instruction in New Hampshire. Approval of a school will be withdrawn whenever it appears that the work of the school does not reach the standard required by the college. No certificate will be accepted from a private tutor or instructor.

Certificates should meet the requirements IN FULL; in case of exceptions the candidate will be examined on any requirement not covered by the certificate. If the certificate makes ANY exception in the case of a student who has not regularly graduated from an approved school, the certificate will not be accepted, and the student will be examined on all the requirements.

Certificates will be accepted for that work only which has been done in the certifying school, or which is necessarily involved in the work done there; work done in the grammar school must not be certified unless reviewed in the high school.

Certificates must be made out on a blank furnished by

the college, and should be mailed to the dean at the CLOSE of the SCHOOL year.

COMPLETE CERTIFICATES.

THE SIGNATURE OF THE PRINCIPAL IS TO BE AFFIXED TO THE GENERAL CERTIFICATE, AND TO THAT OF EACH DEPARTMENT IN WHICH THE WORK OF THE CANDIDATE IS CERTIFIED.

PARTIAL CERTIFICATE.

In case the work of a graduate has not been up to certificate grade in one or more subjects, the principal is requested to sign the general certificate, crossing out the words "and that in my judgment he is prepared to enter at once upon the work of the freshman year." He is also requested to fill out the group certificates in full *except signature*, the signature being attached only to such as indicate certificate grade.

Divided certificates from two or more schools will be accepted when the preparatory work has been done in more than one institution.

Certificate forms will be furnished upon application.

Candidates for advanced standing are also examined in the studies that have been pursued by the class which they propose to enter.

Examinations will be given, in the subjects presented for admission, on the Tuesday and Wednesday preceding the beginning of the college year. Candidates will present themselves with their credentials on the first day of the examination. See Calendar.

REQUIREMENTS FOR GRADUATION FROM FOUR YEAR COURSES.

The degree of Bachelor of Science will be conferred upon those who complete a four year course or its equivalent.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding commencement; and each member of the class may receive a statement of his standing at the office of the registrar at 2 p. m. on the next day, Wednesday. All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

Each candidate for a degree must prepare a thesis on some subject relating to the studies he has taken.

FOUR YEAR COURSES. DESCRIPTION OF STUDIES.

AGRICULTURE.

The rapid development of the science of agriculture has made it necessary to divide the subject into several distinct branches or subdivisions, and to give to each of these branches a definite name. Accordingly the various agricultural studies will be found grouped under the following heads: Agronomy, or technical agriculture; Zootechny, or animal industry; Agrotechny, or dairying; Rural Engineering and Farm Economy.

AGRONOMY.

PROF. TAYLOR.

Agriculture 1. Farm Equipment and Farm Crops.

Lectures and recitations upon the selection, planning and equipment of farms; fencing; drainage; farm wells; harvesting and tillage implements; silos and stable construction, etc. History, use and methods of culture of our various farm crops. Practical exercises in leveling and laying out of drains and in the preparation of farm and building plans. Judging and scoring the different varieties of grains and grasses. For Agricultural Juniors.

Three exercises per week. 1st. S.

Agriculture 2. Soils and Soil Physics.

Lectures and recitations upon the formation, kinds and physical properties of soils; the movements and conservation of soil moisture; the relation of heat and air to soil; the nature and physical effects of tillage and fertilizers; laboratory work and experimentation with soils to show the physical effects of different conditions and texture. For Agricultural Juniors.

Three exercises per week. 2nd S.

Agriculture 3. Soil Management and Fertility.

An advanced course in soils for those who have shown a special aptitude in the preceding course. The processes of soil formation, the physics and chemistry of soils, soil classification and mapping and the principles of fertility will be discussed. The lecture work will be supplemented by laboratory and field experimentation. Elective for Agricultural Seniors.

Three exercises per week. 1st S.

PROF. MORSE.

Agriculture 4. Manures and Fertilizers.

A course of lectures, themes and abstracts on the subject of plant food and its sources. Elective for Agricultural Seniors.

Two exercises per week. 2nd S.

RURAL ENGINEERING AND FARM ECONOMY.

PROF. TAYLOR.

Agriculture 5. Agricultural Seminary.

This course consists of library and reference work and a study of current agricultural literature. Each student will prepare during the term a certain number of abstracts, reports of papers upon topics relating to agriculture. For Agricultural Seniors.

Two exercises per week. 1st S.

Agriculture 6. Agricultural History and Economics.

Lectures and recitations upon the history of agriculture from early Egyptian to modern American; present agricultural methods and systems in various countries; the principles of economics as applied to the organization, equipment and operation of the farm; tenancy and land ownership; practical problems in farm management. For Agricultural Seniors.

Four exercises per week. First nine weeks 2nd S.

Agriculture 7. Farm Mechanics.

Lectures and recitations upon the principles of construction of farm buildings; barns and silos; construction and maintenance

of country roads; principles of draft; farm motors and machinery. Practical work in testing and comparisons of various makes and kinds of farm machinery. For Agricultural Seniors.

Four exercises per week. Last eight weeks 2nd S.

ZOOTECCHNY, OR ANIMAL INDUSTRY.

ASST. PROF. PEW.

Agriculture 8. Breeds of Livestock.

Lectures and recitations upon the origin, history, development, characteristics and adaptability of the different breeds of cattle, sheep, horses and swine. In the study of beef cattle, market conditions and requirements are considered. In the study of dairy cattle, milk and butter production is considered. In the study of sheep, mutton and wool requirements are considered, also the raising of early lambs.

In the study of horses, beside the origin, history and development of the breeds, market classifications and management are considered. In the study of swine, the influence of various feeds and different methods of management as affecting types are considered. One afternoon each week is used for judging the different breeds. For Agricultural Sophomores.

Three exercises per week. 1st S.

Agriculture 9. Principles of Breeding.

Lectures and recitations upon the laws of heredity; value of selection in improving and maintaining a high standard of excellence in farm stock; variation, cause and extent; methods of breeding, including discussion of inbreeding, crossing and grading. For Agricultural Juniors.

Two exercises per week. 1st S.

Agriculture 10. Stock Feeding.

Lectures and recitations upon laws of nutrition; composition and digestibility of feed stuffs; influence of feed on the animal body, preservation of coarse fodders; a study of leading cereals and by-products. Practice will be given in computing and compounding rations for various purposes. For Agricultural Juniors.

Three exercises per week. 2nd S.

Agriculture 11. Veterinary Science.

Lectures and recitations upon anatomy and physiology of the animal body; holding a post-mortem; simple farm medicines and methods of administering; breeding and some of its effects; common farm operations; common infectious and contagious diseases affecting farm animals and methods of treatment. Elective for Agricultural Juniors.

Three exercises per week. 2nd S.

Agriculture 12. Poultry.

Lectures and recitations upon different classes and varieties of poultry; breeding and feeding; location and building of poultry houses; a study of incubators and brooders; methods of preventing disease. Practice will be given in scoring. Elective for Agricultural Seniors.

Two exercises per week. 2nd S.

Agriculture 13. Advanced Livestock.

This is a course laid out especially for those students who have shown proficiency in the previous courses having to do with Livestock. Special problems will be worked out as desired by the students concerning the breeds and their management; advanced live stock judging will also be given. Elective for Agricultural Seniors.

Three exercises per week. 2nd S.

Agriculture 14. Animal Mechanics.

Lectures and recitations upon conformation and soundness and anatomy of the horse; the principles of mechanics involved as applied to the animal machine; proportions and conformations of horses for speed and draft; various gaits. Practical exercises in measuring animals and testing value of given measurements for given purposes. Course to be given every other year beginning with 1905. Elective for Agricultural Seniors or Juniors.

Four exercises per week. 1st S.

BOTANY.

ASSOC. PROF. BROOKS.

3. General Botany.

Lectures and laboratory work on the fundamental principles of plant physiology, followed by the study of a series of representative cryptogams. For Agricultural and General Course Sophomores.

Three exercises per week. 1st S.

4. General Botany.

This course continues the work on type forms begun in Course 3 and includes the study of vascular cryptogams, gymnosperms and angiosperms. The latter part of the semester will be devoted to a study of plant families and plant societies as represented in the local flora. Lectures, laboratory and field work.

Open to students who have completed Course 3.

Three exercises per week. 2nd S.

5. Plant Pathology.

This course deals with the nature, cause and prevention of plant diseases and includes a systematic consideration of parasitic fungi. Lectures and laboratory work.

Open to students who have completed Course 4.

Four exercises per week. 1st S.

6. Mycology.

A study of representative groups of fungi, including the bacteria; culture methods and pathological work with fungous diseases. Lectures, laboratory and field work.

Open to students who have completed Course 4.

Three exercises per week. 2nd S.

7. Plant Physiology.

Lectures and experimental work on absorption, nutrition, growth, respiration and irritability.

Open to students who have completed Course 4.

Three exercises per week. 1st S.

8. Plant Histology.

A minute study of plant cells and plant tissues; starches, aleurones and other cell contents; use of reagents and stains; cutting and mounting of sections. Lectures and laboratory work.

Open to students who have completed Course 4.

Three exercises per week. 2nd S.

9. 10. Advanced Botany.

Opportunity to do original work along special lines will be offered to students who have shown special ability in the preceding courses.

Three exercises per week throughout the year.

CHEMISTRY.

ORGANIC CHEMISTRY—PROF. MORSE.

INORGANIC CHEMISTRY—PROF. PARSONS,
ASST. PROF. JAMES, DR. RANDALL.

1. Inorganic Chemistry.

Lectures and recitations on general and theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solutions of chemical problems will be required. Required of all Freshmen.

Three exercises per week. 1st S.

2. Inorganic Chemistry.

Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc.

Open only to students who have completed Course 1.

Two exercises per week. 2nd S.

3. Elementary Physical Chemistry.

A short elementary course of ten lectures on the Dissociation Theory and its application; the Mass Law, etc. To accompany Courses 2 and 4.

Elective by special arrangement.

4. Qualitative Analysis.

Course 4 consists of laboratory practice, with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases and to keep a full set of notes. He will have practice in the writing of reactions and will fill out numerous slips containing questions bearing upon his work.

Open only to students who have completed Course 1.

*1st Division Freshman Year. 2nd S.
2nd Division Sophomore Year. 1st S.
Fifty-one exercises.*

5. Qualitative Analysis.

A short advanced course for Chemical Sophomores on insoluble substances and the rarer elements, to precede Chemistry 10. Sophomore Year, first five weeks.

Twenty-five exercises. 1st S.

PROF. MORSE.

6. Organic Chemistry.

Lectures and recitations. A study of the chemistry of the carbon compounds. Required of Agricultural and Chemical Sophomores, elective in General Course.

Open only to students who have completed Chemistry 1 and 2.

Three exercises per week. 2nd S.

PROF. MORSE.

7. Chemistry of Plant and Animal Nutrition.

Lectures and recitations on the composition of plants, animals and foods. Required of Agricultural and Chemical Juniors, elective for General Course Juniors.

Open only to students who have completed Chemistry 6.

Two exercises per week. 1st S.

PROF. MORSE.

8. Organic Chemical Laboratory.

The course consists mainly of laboratory practice in preparing and purifying organic compounds and a study of quantitative

organic reactions and analyses. Lectures and recitations will be held from time to time in connection with the practice. Required of Chemical Juniors, elective for General Course Juniors.

Three exercises per week. 2nd S.

10. Quantitative Analysis.

A preliminary course in quantitative analysis to familiarize the student with the general methods of chemical manipulation and analysis. For Chemical Sophomores. Elective in the general course in Sophomore, Junior and Senior years, provided laboratory facilities permit. Last twelve weeks.

Open only to students who have completed Chemistry 4.

Five exercises per week. 1st S.

11. Quantitative Analysis.

A continuation of Course 10.

Six exercises per week. 2nd S.

12. Advanced Quantitative Analysis.

Course 12 is arranged for students of the Chemical Courses, and is intended to fit them for work in the laboratories of agricultural experiment stations, fertilizer works, iron works, sugar refineries, etc., and for the duties of the public analyst. This course will be made to fit the end which each has in view, and will be largely an individual one. For those students in the Chemical Division of the Agricultural Course the analyses made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, foodstuffs, sugars, etc. For the student wishing to enter metallurgical works, the analyses will be in the main upon iron, steel and other metals, ores, limestones, slags, alloys, fuels, etc. As a preparation for the study of medicine, work will be done on poisons, foods, drugs, urine, etc., Other lines will be arranged to meet the wants of the individual student. Each student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary and industrial chemistry, in order to lay a foundation for any future work which may be required of him. A short course in gas and oil analysis will also be provided. For Chemical Juniors.

Open only to students who have completed Course 11.

Five exercises per week. 1st S.

13. Advanced Quantitative Analysis.

A continuation of Course 12. For Chemical Juniors.

Four exercises per week. 2nd S.

14. Industrial Chemistry.

Course 14 consists of lectures on chemical manufactures, such as sugar, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints, dyes, soaps, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern views; and trips to the leading New England cities, to examine important chemical manufactures, will be taken as far as practicable. For Chemical Juniors.

Open only to students who have completed Courses 1 and 2.

Two exercises per week. 2nd S.

15. Metallurgy.

Course 15 consists of lectures describing the processes employed in the smelting of the ores of iron, lead, copper, zinc, silver, gold, etc., and upon the methods used in refining these metals. The lectures are illustrated by stereopticon and by specimens of metallurgical products. For Chemical Juniors.

Open only to students who have completed Courses 1 and 2.

One exercise per week. 2nd S.

Courses 14 and 15 are given in alternate years with Course 22.

16. Assaying.

A course in the fire assay of gold and silver ores.

Open only to students who have taken Courses 10 or 18.

Seventeen exercises. 2nd S.

17. Agricultural Analysis.

This course is arranged especially for students of the agricultural course, and consists mainly of the quantitative determination of the constituents of milk, butter, fertilizers, grain, etc.

Open only to students who have completed creditably the work of Courses 1, 2, and 4. Elective subject to desk room in laboratory.

Three exercises per week.

18. Metallurgical Analysis.

This course is arranged for the students of the engineering departments who may elect the same, and consists mainly of the quantitative determination of ores, slags, metals, alloys, fuels, etc.

Open only to students who have completed creditably the work of Courses 1, 2, and 4 or 5. Elective subject to desk room in laboratory.

Three exercises per week.

19. Chemical Journals, Methods, etc.

The work consists of the study of current chemical literature, mainly in the German language, with recitations twice a week. Each student will be expected to prepare abstracts, reports, criticisms, etc., upon assigned articles. For Chemical Juniors.

Open to students who have begun Course 11.

Two exercises per week. 1st S.

20. Chemical Journals.

A continuation of Course 19. For Chemical Juniors.

Two exercises per week. 2nd S.

21. Physical Chemistry, Lectures.

The work consists of advanced study of chemical theory. Practical experiments will be performed, with the aid of the student in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, ionization, electrolysis, molecular and atomic volume, thermo chemistry, equilibrium, the phase rule, etc., will take up much of the time. Required of Chemical Juniors and Seniors.

Course 21 comes in alternate years and is open to students who have completed Courses 1, 2 and 10.

Two Exercises per week. 1st S.

22. Physical and Electro Chemistry, Lectures.

A continuation of Course 21, and is given in alternate years with Courses 14 and 15.

Three exercises per week. 2nd S.

23. Chemical Research.

Especially arranged for students of the Chemical Engineering Course. May merge at any time into 21 and will usually do so about the middle of the first semester.

Eight exercises per week. 1st S.

24. Thesis.

The work of the last semester of the chemical engineering course is given up to the special study of some selected subject in any branch of chemical science and the student is required to present a thesis showing him to be capable of independence of thought and manipulation.

Eight exercises per week. 2nd S.

DAIRYING.

ASSOC. PROF. RASMUSSEN.

1. Farm Dairying.

Lectures and recitations on the Babcock test, tests for determining acidity in milk and on the use of the lactometer in detecting adulterations in milk. Includes also a study of the composition of milk separation and churning. The laboratory work will be made applicable to farm conditions. For Agricultural Juniors.

Four exercises per week. 1st S.

2. Advanced Butter Making.

A study of the secretion, chemical and physical properties of milk, pasteurization, cream ripening, commercial starters, churning, marketing and scoring of butter. The laboratory work will be made applicable to factory conditions.

Open to students who have completed Course 1.

Three exercises per week. 2nd S.

3. Technology of Milk.

Consists of a study of the uses of milk and its by products outside the scope of butter and cheese making; the production and

preparation of sanitary, certified, modified milk; the making of condensed milk and koumiss; the manufacture of casein and milk sugar, and the preparation of ices and ice cream.

Open to students who have completed Course 1.

Two exercises per week. 2nd S.

4. Factory Management.

This course is designed for students wishing to fit themselves for managers of large factories and other dairy establishments. It consists of a study of the organization, location, construction, and operation of factories; special problems connected with the manufacturing of butter; dairy conditions and methods in foreign countries.

Open to students who have completed Course 2.

Three exercises per week. 1st S.

5. Dairy Bacteriology and Cheese Making.

Lectures and demonstrations on the function of bacteria and the application of bacteriological principles to dairy work.

A course of lectures will be given covering the details of manufacturing, curing and marketing of the more important kinds of cheese.

Open to students who have completed Course 1.

Two exercises per week. 2nd S.

6. Dairy Research.

A study of the work of the experiment stations and other dairy literature.

Open to students who have completed Courses 1, 2 or 3.

Two exercises per week. 1st S.

DRAWING.*

PROF. PUTNAM, MR. LATON.

These courses are of an industrial nature and include both freehand and mathematical branches of this subject.

* Do not purchase drawing instruments or materials until you have consulted the instructor as to what is necessary. Students intending to take an engineering course should purchase high grade instruments.

The work of the first year is required of all regular students in four year courses, except the General Course.

The advanced mathematical and machine drawing is prescribed for engineering courses.

The advanced free-hand drawing is elective and may be taken only by those with adequate preparation.

MECHANICAL DRAWING.

PROF. PUTNAM, MR. LATON.

1. Industrial Drawing. Prof. Putnam, Mr. Laton.

Free-hand lettering, free-hand drawing, use of instruments, mathematical drawing, inking, tinting, tracing and blue-prints.

Systems of object drawing; orthographic projection; isometric drawing; mechanical perspective; shades and shadows. For Agricultural and Engineering Freshmen, elective for General Course Freshmen.

Agricultural and General Course Freshmen.

Two exercises per week. 1st S.

Engineering Freshmen.

Two and one-half exercises per week. 1st S.

NOTE.—Alternating with shop-work on Wednesdays.

2. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Recitations and drawing exercises in the solution of geometrical problems by orthographic projection.

For Engineering Freshmen. (Divisions 1 and 2.)

Division 1, whole semester.

Three exercises per week. 2nd S.

Division 2, first ten weeks.

Three exercises per week. 2nd S.

3. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Continuation of 2. Practical problems on bridge beams, rafters, piping, etc.

For Engineering Freshmen (Division 2). Last seven weeks.

Two exercises per week. 2nd S.

4. Design of Farm Buildings. Prof. Putnam.

This course consists of drawings of floor plans and framing details for farm buildings in preparation for the Rural Architectural Course of the Senior Year. For Agricultural Freshmen.

Two exercises per week. 2nd S.

5. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Same as Course 3. For Engineering Sophomores (Division 1). First seven weeks.

Two and one-half exercises per week. 1st S.

6. Elementary Machine Drawing. Mr. Laton.

Mechanism drawing; detail and assembly drawing of simple machines. For Engineering Sophomores.

Division 1, last ten weeks.

Two exercises per week. 1st S.

Division 2, whole semester.

Two exercises per week. 1st S.

7. Elementary Machine Drawing and Free Hand Drawing of Chemical Apparatus. Mr. Laton.

For Chemical Sophomores.

Two exercises per week. 1st S.

8. Machine Drawing. Mr. Laton.

Working drawings of various machines and machine tools, including steam boiler and engine details. For Engineering Sophomores (Divisions 1 and 2).

Two and one-half exercises per week. 2nd S.

NOTE.—Alternating with shop-work on Wednesdays.

9. Free-hand Drawing. Prof. Putnam.

Light and shade drawing from casts and still life. Charcoal work. Elective for General Course Sophomores.

Two exercises per week. 1st S.

10. Free-hand Drawing.

Wash drawings and water color work; pencil sketching from nature and exercises in perspective. Elective for General Course Sophomores.

Two exercises per week. 2nd S.

11. Architectural Drawing.

Studies of architectural detail and historic ornament. Elective for General Course Juniors.

Three exercises per week. 1st S.

12. Architectural Drawing.

Continuation of 11. The design of a building with details of ornament. Elective for General Course Juniors.

Three exercises per week. 2nd S.

13. Advanced Architectural Drawing.

Elective for General Course Seniors.

Three exercises per week. 1st S.

14. Advanced Architectural Drawing.

Elective for General Course Seniors.

Two exercises per week. 2nd S.

NOTE. — Courses 13 and 14 are open only to students who have completed Courses 11 and 12.

16. Free-hand or Charcoal Drawing.

Elective for General Course Freshmen. Last seven weeks.

Four exercises per week. 2nd S.

ELECTRICAL ENGINEERING.

PROF. NESBIT, ASST. PROF. ADAMS, MR. COOPER.

Course numbers 1 to 40, inclusive, are reserved for subjects taken by Electrical Engineering Students; 41-50 for Mechanical Engineering Students; 51-60, Chemical Engineering Students; and 61-70 for Agricultural and General Course Students.

1. Direct Currents and Direct Current Dynamos. Prof. Nesbit.

This course is taken up upon completion of physics 5 and begins with the study of the magnetic field produced by permanent and electro magnets, the different forms of field magnets, the physical

theory of the dynamo and the calculations of the magnetic circuit. The next items are the choice of insulating materials and the copper for the coils, the consideration of armature reactions and the theory of commutation. Upon completion of the text on characteristic curves, a very thorough test is made of an Edison 3 K-W compound dynamo to determine its series—shunt and compound characteristics.

The text-book used in Courses 1 to 3 is S. P. Thompson's *Dynamo Electric Machinery*, Vol. 1, Direct Currents. Reference is made to other standard texts. For Electrical Engineering Juniors.

Three exercises per week. 1st S.

2. Direct Current Dynamos and Motors. Prof. Nesbit.

A continuation of Course 1.

The following subjects are taken up this term: The theory of armature winding and construction; mechanical points of design and construction; the various losses; and the design of closed coil types of dynamos. A careful study is made of arc lighting dynamos, machines for special purposes, direct current motors and their design, regulators, controllers and the management of dynamos and motors. For Electrical Engineering Juniors.

Two exercises per week. 2nd S.

3. Theoretical Electricity. Prof. Nesbit.

This course begins with the study of the fundamental and derived units, the latter of which include the electrostatic, the electromagnetic and practical systems, and their conversion factors. The general theorems of the electrostatic field are developed mathematically, the laws are stated and practical application is made of them in the design of commercial apparatus.

Following this part of the subject, a study is made of magnetism and the magnetic field due to magnets, magnetic shells and circuits traversed by electric currents.

The equivalence of magnetic shells and voltaic circuits is considered with regard to its important application in galvanometers, voltmeters, etc. The theory of measuring instruments of different types is studied in detail.

A large number of examples from Hooper and Wells' *Electrical Problems* are solved as a part of Courses 4 and 5. The text used in these courses is a set of notes based upon the work of Maxwell, Mascart et Joubert, Gray, J. J. Thomson, Gerard, Entage, Nipher, Foster, Jackson and others. For Electrical Engineering Juniors.

Three exercises per week. 1st S.

4. Theoretical Electricity. Prof. Nesbit.

This is a continuation of Course 3. The laws of series and parallel circuits, the laboratory methods of measuring the various electrical quantities, such as electromotive forces, resistances, capacities, permeability of iron, etc., the methods of standardizing instruments, the laws of electrolysis, thermo-electric currents, etc., constitute the subjects taken up in Course 4. For Electrical Engineering Juniors.

Four exercises per week. 2nd S.

5. Theoretical Electricity.—Alternating Currents and Alternating Current Machinery. Prof. Nesbit.

This course begins with the study of the properties of periodic curves, the average and virtual values of the ordinates of sine curves, followed by the development of general expressions for the instantaneous electromotive force impressed upon, and the energy spent in a series circuit, containing resistance R , self-induction L and capacity S , in terms of their components.

The phase relations of these component quantities are studied by plotting curves for a typical circuit of assumed data.

D. C. and J. P. Jackson's Alternating Currents and Alternating Current Machinery, S. P. Thompson's Alternating Currents and Franklin and Esty's Alternating Currents are the texts upon which Courses 5 and 6 are based.

Considerable time is spent in getting a correct knowledge of typical series and parallel circuits containing inductive and condenser reactances.

The solution of problems by the analytical and graphical methods, the methods of measuring inductances, power, etc., the magnetic circuit of alternators, the regulation efficiencies and losses of machines of different types receive due attention.

Foster's Electrical Engineer's Pocket Book is purchased by all Seniors. For Electrical Engineering Seniors.

Six exercises per week. 1st S.

6. Theoretical Electricity.—Alternating Currents and Alternating Current Machinery. Prof. Nesbit.

A detailed study of the transformer is made and formulæ of design are developed, which enable its operation to be predicted under various conditions. Jackson's text is used, in addition to notes from Bedell's and Fleming's works on the transformer.

This is followed by the study of Polyphase Electric Currents and Machinery, in which S. P. Thompson's book is used in class, along with that portion of Jackson's work on the same subject and Franklin and Esty's Alternating Currents. For Electrical Engineering Seniors. First ten weeks.

Five exercises per week. 2nd S.

7. Alternating Current Phenomena. Prof. Nesbit.

Steinmetz's text is used in class. For Electrical Engineering Seniors. Last seven weeks.

Five exercises per week. 2nd S.

20. The Telephone. Asst. Prof. Adams.

A course of lectures and recitations on the acoustic and electrical principles of telephony, the different forms of calling and receiving apparatus and accessories, and simple circuits constitute the introduction to the course. This is followed by a consideration of the more complex forms of circuits, exchange switchboards, transfer systems and the construction of overhead and underground systems.

Kempster B. Miller's American Telephone Practice is used as a text. For Electrical Engineering Seniors. First six weeks.

Three exercises per week. 1st S.

21. The Telegraph and Electric Signalling. Asst. Prof. Adams.

The work of this course consists of a careful study of the elementary electrical principles of telegraphy, the construction and connection of lines, repeaters, high speed telegraphy, simple and multiplex telegraphy, submarine signalling, automatic devices, general electric signalling for purposes of alarms, railroads, etc., and wireless telegraphy.

The text used is Maver's American Telegraphy. For Electrical Engineering Seniors. Seventh to twelfth week inclusive.

Three exercises per week. 1st S.

22. Electric Railroads and Power Distribution for Electric Railroads. Asst. Prof. Adams.

The chief items considered are the location of the power station as determined by economical questions, the fluctuations of load and their nature and magnitude, feeding and return systems,

boosters, substations, fast and heavy railway service, alternating current motors for railroads, car equipment, controllers, safety devices, line and track construction, operation and maintenance. In connection with this course, several exercises are devoted to electricity in mining. Reference is made to Bell's Power Distribution for Electric Railroads and other standard works as well as to the electrical journals. Lectures on the storage battery are included in this course together with discussions of the different types of cells, charging, discharging, their care and management, their commercial application for keeping the voltage constant at feeding centers, etc., and as sources of constant potential for laboratories.

Notes and references are used by the class. For Electrical Engineering Seniors. Last five weeks.

Three exercises per week. 1st S.

23. Electric Lighting. Asst. Prof. Adams.

This course covers such subjects as general electrical distributions for series and parallel systems, the development of wiring formulæ, the calculation of size of feeders and mains, the regulation of feeder voltages, two and three wire systems, overhead and underground conductors, a detailed study of the arc and incandescent lamps, alternating current systems of distribution by transformers, etc.

Crocker's Electric Lighting, Vol. II, is used as a text. For Electrical Engineering Seniors. First nine weeks.

Two exercises per week. 2nd S.

24. High Tension Power Transmission. Mr. Cooper.

The text-book used is High Tension Power Transmission, a set of papers compiled by the American Institute of Electrical Engineers, and published by the McGraw Co., N. Y. city. For Electrical Engineering Seniors. Last eight weeks.

Two exercises per week. 2nd S.

31. Electrical Laboratory.

Courses 15, 16 and 17 are consecutive and consist in the measurement of resistances, inductances, the calibration of a ballistic galvanometer and Ryan electrometer, the permeabilities of samples of iron. Tests are made on a small dynamo, connected to run as a direct current series, a shunt, or a compound motor to determine the speed, torque, current, output and efficiency curves

of motors. The determination of the candle power of incandescent and arc lamps, the calibration of resistances, the measurement of power in alternating current circuits, alternator characteristics, the running of synchronous motors, the load curves of a transformer, power measurement by a wattmeter and the study of polyphase machinery constitute the remainder of the course.

The laboratory manuals, upon which Courses 15, 16 and 17 are based, are Parr's Electrical Testing in Physics and Electrical Engineering, Nichols' Laboratory Manual in Physics and Applied Electricity, and Swenson and Frankenfield's Testing of Electro Magnetic Machinery, and Franklin and Esty's Dynamo Laboratory Manual. For Electrical Engineering Seniors.

Two exercises per week. 1st S.

32. Electrical Laboratory. Prof. Nesbit, Asst. Prof. Adams, Mr. Cooper.

This is a continuation of Course 31 and is chiefly devoted to alternating current work. For Electrical Engineering Seniors.

Two exercises per week. 2nd S.

33. Thesis. Prof. Nesbit, Asst. Prof. Adams, Mr. Cooper.
For Electrical Engineering Seniors.

Three exercises per week. 2nd S.

A deposit of fifteen dollars, to cover damages, breakages, etc., is required in Courses 31, 32 and 33. Any unexpended balance is refunded at the close of the college year. Where apparatus is constructed as a part of a thesis, it shall remain the property of the department.

41. The Elements of Electrical Engineering. Mr. Cooper.

Franklin and Estey's text, The Elements of Electrical Engineering, is used in Courses 41 to 42. These courses are similar, though briefer than 1 and 2. For Mechanical Engineering Juniors.

Three exercises per week: 1st S.

42. The Elements of Electrical Engineering. Mr. Cooper.

A continuation of 41. For Mechanical Engineering Juniors. First eight weeks.

Three exercises per week. 2nd S.

43. Alternating Currents. Mr. Cooper.

This is a brief course taken by Juniors of the Mechanical Engineering Course upon completion of Courses 41 and 42. The text-book used is Franklin and Williamson's Alternating Currents. Last nine weeks.

Three exercises per week. 2nd S.

44. Alternating Currents. Mr. Cooper.

This is a continuation of Course 43 and is taken by Seniors of the Mechanical Engineering Course. First eight weeks.

Three exercises per week. 1st S.

45. Applications of Electricity. Mr. Cooper.

This is a course of lectures on the telephone, telegraph, electric railroads, and power transmission, and is given to Seniors of the Mechanical Engineering Course upon completion of Courses 43 and 44. The subjects taken up in this course are more briefly treated than in Courses 20 to 24, inclusive. Last nine weeks.

Three exercises per week. 1st S.

51. Industrial Electricity. Mr. Cooper.

The principles and methods employed in electrical measurements, such as resistance of wires and batteries e. m. f. of cells, current measurement by ammeters and electrolysis, the use of the voltmeter, etc., will be carefully considered. A brief study will be made of the dynamo, motor, transformer, primary and secondary batteries, arc and incandescent lamps and the general principles of electrical distribution. Special attention is given to the needs of the chemical student. For Chemical Engineering Seniors.

Three exercises per week. 1st S.

52. Industrial Electricity. Mr. Cooper.

This is a continuation of Course 51. For Chemical Engineering Seniors.

Three exercises per week. 2nd S.

61. Industrial Electricity. Asst. Prof. Adams.

In an elementary way, study is made of such subjects as the dynamo, motor, transformer, telephone, telegraph, storage bat-

teries, incandescent and arc lighting, and electric railroads. D. C. Jackson's Elements of Electricity and Magnetism is used as an elementary text. Elective for General Course Seniors.

Three exercises per week. 1st S.

ENGLISH.

1. English Composition and Rhetoric. Assoc. Prof. Harrison, Mr. Spencer.

The theory of composition, theme writing, book reviews and an introduction to the principles of literary criticism. For Freshmen.

Three exercises per week. 1st S.

2. English Composition and Rhetoric. Assoc. Prof. Harrison, Mr. Spencer.

This is a continuation of Course 1.

Open to students who have completed Course 1.

Three exercises per week. 2nd S.

3. Advanced English Composition and Criticism. Mr. Spencer.

(a) Composition. The four forms of composition (narration, description, exposition and argumentation) will be taken up and practice given in each form. There will also be daily and weekly themes based on topics of the day (editorials), and on required readings. (Gardner's Forms of Prose Literature.)

(b) Criticism. The history of criticism will be studied briefly, each student having one novel and one poet to criticize. (Winchester's Principles of Literary Criticism). For Sophomores, Juniors and Seniors.

Three exercises per week. 1st S.

4. The English Drama. Mr. Spencer.

Lectures on the English drama, with required readings in Shakespeare, Sheridan and Goldsmith. There will also be recitations and discussions. Elective for Juniors and Seniors.

Three exercises per week. 2nd S.

5. The English Novel. Assoc. Prof. Harrison, Mr. Spencer.

Lectures on the development of the English novel. Outside readings, quizzes and discussions.

Three exercises per week. 1st S.

6. English Literature. Assoc. Prof. Harrison.

The historical development of English literature. This course is designed to set forth the philosophy of literature and the relation of writers to their predecessors and contemporaries. Text books, lectures and readings. For Agricultural and Chemical Seniors. Elective for General Course.

Three exercises per week. 2nd S.

7. American Literature. Prof. Scott.

Lectures with an extensive course of reading. Elective for General Course and Agricultural Seniors.

Four exercises per week. 2nd S.

FORESTRY.

PROF. HALL.

1. Arboriculture and Forestry.

This course is intended to give the student a knowledge of the various methods of forestry management in Europe and America. The text and lectures will cover the use of trees for shelter, shade and ornament, and their propagation; value of trees for timber; how to improve existing woodlands; influence of forests upon soils, crops and climate; establishment and management of plantations and forest trees. For Agricultural Sophomores.

Three exercises per week. 2nd S.

2. Forest Technology.

This course aims to give the student advanced theoretical and practical work in establishing, improving and managing woodlands; estimating and measuring standing timber and harvesting

forest products, forest administration, laws and working plans. Seminary and laboratory work. Elective for Seniors who have shown special ability in Course 1.

Three exercises per week. 1st S.

FRENCH.

ASSOC. PROF. WHORISKEY, MR. SPENCER.

Courses 1 and 2 are taken in Freshman Year by students who offer German for admission.

1. Elementary French. Mr. Spencer.

Essentials of French grammar and reading, with practice in speaking and writing French. Dictation.

Three exercises per week. 1st S.

2. Elementary French. Mr. Spencer.

Reading of Modern French Prose; translation from English into French of connected narrative. Dictation.

Three exercises per week. 2nd S.

3. French Prose. Assoc. Prof. Whoriskey.

Reading and translation of French Prose, Composition, Poems.

Three exercises per week. 1st S.

4. French Prose, History and Travel.

Reading and Translation, Composition based on some book read in class.

Three exercises per week. 2nd S.

5. French Prose of Nineteenth Century. Assoc. Prof. Whoriskey.

Selections from Hugo, Balzac, Sand, Dumas père, Daudet will be read. Sight reading.

Three exercises per week. 1st S.

6. French Prose of Nineteenth Century. Assoc. Prof. Whoriskey.

Continuation of Course 5.

Three exercises per week. 2nd S.

*7. French Literature in the Seventeenth Century.

Corneille, Racine, Molière, Bossuet, Mme. de Sévigné, La Fontaine.
Three exercises per week. 1st S.

*8. Continuation of Course 7.

Three exercises per week. 2nd S.

9. French Composition.

One and one-half exercises per week. 1st S.

10. French Composition.

One and one-half exercises per week. 2nd S.

 GEOLOGY.

1. Mineralogy. Prof. Parsons.

A short course in blowpipe analysis, followed by laboratory practice in the determination and study of minerals, with special reference to their economic value. For Agricultural and Chemical Juniors. Elective. For General Course.

Open only to students who have taken Chemistry 1 and 2.

Two exercises per week. 2nd S.

2. Elementary Geology. Mr. Barrows.

A brief course in the elements of geology. Special attention is given to local geology and excursions are made to various points of interest in the vicinity. For Agricultural and General Juniors.

Open to students who have completed Zoology 5.

Three exercises per week. 2nd S.

3. Historical Geology. Mr. Barrows.

The development of the continents of the earth and the evolution and distribution of the animal and plant forms from the

* Courses 5 and 6 are to be given in 1908-1909 and then in alternate years with 7 and 8.

earliest times to the present. Recitations, lectures and laboratory work. Elective for Agricultural and General Seniors.

Three exercises per week. 1st S.

GERMAN.

ASSOC. PROF. WHORISKEY, MR. SPENCER.

Courses 1 and 2 are taken in Freshman Year by students who offer French for admission. Courses 4 and 5 are taken by all Sophomores.

1. Elementary German. Assoc. Prof. Whoriskey, Mr. Spencer.

German Grammar. Declension of articles, nouns, adjectives and pronouns; verbs, weak and strong. Reading of simple stories; conversation. Dictation.

Three exercises per week. 1st S.

2. Elementary German. Assoc. Prof. Whoriskey, Mr. Spencer.

Continuation of Course 1. Verbs, modal auxiliaries, essentials of syntax. Composition, Reading and Translation; Poems. Dictation.

Three exercises per week. 2nd S.

3. German Prose of the Nineteenth Century. Assoc. Prof. Whoriskey, Mr. Spencer.

Reading and Translation. Composition based on some book read in class.

Three exercises per week. 1st S.

4. Scientific German. Assoc. Prof. Whoriskey, Mr. Spencer.

Reading and Translation. Composition.

Three exercises per week. 2nd S.

*5. Goethe. Assoc. Prof. Whoriskey.

His Life and Works.

Three exercises per week. 1st S.

*6. Goethe. Assoc. Prof. Whoriskey.

Continuation of Course 5.

Three exercises per week. 2nd S.

*7. Schiller. Assoc. Prof. Whoriskey.

Life and Works.

Three exercises per week. 1st S.

*8. Schiller.

Continuation of Course 7.

Three exercises per week. 2nd S.

9. German Composition. Assoc. Prof. Whoriskey.

One and one-half exercises per week. 1st S.

10. German Composition. Assoc. Prof. Whoriskey.

One and one-half exercises per week. 2nd S.

HISTORY.

PROF. SCOTT.

In the courses in History an important place is given to historical reading carried on in the reference room. In some cases a considerable part of the work is written.

Courses 1 and 2 and Courses 3 and 4 are given on alternate years. Courses 1 and 2 are offered in 1908-'09.

Courses 1 to 4 are open only to students who have passed in Ancient History.

* Courses 5 and 6 are to be given in 1907-08 and then in alternate years with 7 and 8.

Courses 5 to 7 are open only to students who have passed in the History and Constitution of the United States.

1. History of Europe from 476 to 1492.

Recitations and collateral reading. For General Course Freshmen and Sophomores.

Three exercises per week. 1st S.

2. History of Europe from 1492 to 1715.

Recitations and collateral reading. For General Course Freshmen and Sophomores.

Three exercises per week. 2nd S.

3. History of Europe from 1715 to 1815. The French Revolution.

Recitations and collateral reading. For General Course Freshmen and Sophomores.

Three exercises per week. 1st S.

4. History of Europe since 1815.

Recitations and collateral reading. For General Course Freshmen and Sophomores.

Three or four exercises per week. 2nd S.

5. American History to 1783.

For General Course Juniors and Agricultural Seniors.

Three exercises per week. 1st S.

6. Political and Constitutional History of the United States from 1783 to 1837.

For General Course Juniors and Agricultural Seniors.

Three exercises per week. 2nd S.

7. Political and Constitutional History of the United States since 1837.

For General Course Seniors.

Three exercises per week. 1st S.

HORTICULTURE.

PROF. HALL.

With the rapid development of agricultural education, the science of horticulture has become more clearly defined. Horticulture is sub-divided into four classes, viz.: (1) Pomology, or fruit growing; (2) Olericulture, or vegetable gardening; (3) Floriculture, or flower growing; and (4) Landscape Gardening.

1. Principles of Horticulture.

This course is elementary, and comprises the fundamentals of horticulture, emphasizing the sciences upon which horticulture rests and the scope and importance of its field. For Agricultural Freshmen. First eight weeks.

Three exercises per week. 1st S.

2. Olericulture.

Lectures and recitations upon the culture, classification and identification of vegetables. The storing and marketing of vegetables is also considered. For Agricultural Freshmen.

Open only to those who have completed Hort. 1.

Two exercises per week. 2nd S.

3. Greenhouse Management.

Lectures, recitations and laboratory work. This course aims to familiarize the student with modern methods of greenhouse work and the more important plants grown under glass. Soils, varieties, culture, marketing, enemies, etc., are studied. Each student is required to do practical work in propagating, potting, watering, ventilating, etc. A study is made of the history and development of different types of greenhouses, including methods of heating and general management. Elective for Agricultural Juniors.

Three exercises per week. 2nd S.

4. Pomology and Viticulture.

The culture, classification and identification of our leading commercial fruits are taken up for study in this course, the object being to familiarize the student with modern fruit growing, both

the large or orchard fruits and the small or berry fruits. Lectures, recitations and laboratory work. For Agricultural Juniors.

Open only to students who have completed Botany 1 and Zoology 3.

Three exercises per week. 1st S.

5. Landscape Gardening.

Lectures, recitations and laboratory work on the principles of æsthetics as applied to natural scenery; designing, mapping, staking out and planting private and public grounds, parks, cemeteries, etc., are studied and practised. Elective for Agricultural Seniors.

Three exercises per week. 1st S.

6. Plant Breeding.

This course takes up the evolutionary study of plant life and points out through examples, largely of economic horticultural plants, their modification and improvement by mutation, crossing, dwarfing, forcing, etc. Recitations and seminary work. Elective for Agricultural Seniors.

Three exercises per week. 2nd S.

7. Advanced Horticulture.

This course consists of special advanced work arranged to suit the needs of individual students. Elective for Agricultural Seniors.

Open to students who have completed Courses 1 to 4 inclusive.

Two exercises per week. 2nd S.

MACHINE DESIGN.

PROF. PUTNAM.

All students electing the following courses are required to purchase a copy of Kent's "Handbook."

1. Elementary Machine Design.

This course consists largely of the application of the principles of mechanism and mechanics already learned to the solution of problems in design. For Engineering Juniors.

Two exercises per week. 1st S.

2. Elementary Machine Design.

Continuation. The number of designs is such as to include most of the elementary principles of design, yet is sufficiently limited so as to enable the student to complete thoroughly every detail. The designs include calculations on frame design, cylinders and pipes, fastenings, springs, journals, pivots and bearings, shafting, couplings and hangers, gears, pulleys and cranks, and transmission by belts and ropes; also engine details and valve gear problems. For Engineering Juniors.

Two exercises per week. 2nd S.

3. Advanced Machine Design.

The designing of boilers, shaft-couplings, pulleys, etc., having regard to the principles of applied mechanics and strength of materials, with complete working drawings in each case. For Mechanical Engineering Seniors.

Open to students who have completed Machine Design 2 and Mechanical Engineering 5 and 7 to 10.

Four exercises per week. 1st S.

4. Mill Engineering Design.

Figuring for strength of flooring, beams, brick and stone work in a mill storehouse, with drawings of same. This course includes also the study of mill and building construction, with an option on the design of a cotton mill or machine shop. Complete with designs of the power plant and determination of cost of power. For Mechanical Engineering Seniors.

Four exercises per week. 2nd S.

MATHEMATICS.

PROF. PETTEE, MR. COOPER, MR. LATON.

1. Algebra Completed. Prof. Pettee, Mr. Cooper.

For all Freshmen.

Four exercises per week. 1st S.

2. Solid Geometry, with advanced course.

For Freshmen entering without the subject.

Two exercises per week. 1st S.

3. Plane and Spherical Trigonometry. Prof. Pettee, Mr. Cooper.

For all Freshmen. First ten weeks.

Four exercises per week. 2nd S.

4. Surveying. Prof. Pettee.

Recitations, field-work and plotting, including compass, transit, plane-table and level work. Required of Engineering, Chemical and Agricultural Freshmen. Elective for General Course Freshmen. Last seven weeks.

Four exercises per week. 2nd S.

5. Analytical Geometry. Prof. Pettee, Mr. Cooper.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores.

Five exercises per week. 1st S.

6. Differential and Integral Calculus. Prof. Pettee, Mr. Cooper.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores.

Five exercises per week. 2nd S.

7. Differential Equations. Prof. Pettee.

Elective for General Juniors.

Two exercises per week. 1st S.

8. Quaternions. Prof. Pettee.

Elective for General Juniors.

Two exercises per week. 2nd S.

9. Astronomy. Prof. Pettee.

Elective for General Juniors and Seniors.

Two exercises per week. 2nd S.

MECHANICAL ENGINEERING.

PROF. READ, PROF. PUTNAM, MR. LATON.

1. Mechanism. Prof. Putnam.

Recitations and exercises in drawing outlines of elementary combinations of parts of machines, with special reference to the relative motion of the parts, their forms and modes of connection. For Engineering Sophomores.

Open only to students who have completed Mathematics 1-2.

Three exercises per week. 1st S.

2. Mechanism. Prof. Putnam.

For Engineering Sophomores.

Continuation of 1. First ten weeks.

Three exercises per week. 2nd S.

3. Elementary Steam Engineering. Prof. Putnam.

For Engineering Sophomores. Last seven weeks.

Three exercises per week. 2nd S.

4. Mechanics of Engineering. Mr. Laton.

Courses 4, 5 and 6 are devoted to recitations in statics and dynamics. For Engineering and Chemical Juniors. First ten weeks.

Courses 4 to 6 are open only to students who have completed Mathematics 1 to 7, inclusive, and Physics 1.

Four exercises per week. 1st S.

5. Mechanics of Engineering. Prof. Read.

Continuation of 4.

Four exercises per week. 2nd S.

6. Graphic Statics. Prof. Putnam.

For Engineering and Chemical Juniors. Last seven weeks.

Four exercises per week. 1st S.

7. Steam Engineering. Prof. Read.

Recitations and lectures on thermodynamics. For Engineering Juniors and Chemical Seniors.

Course 7 is open only to students who have completed Mathematics 1-7, Physics 1 and 2, Drawing 1 to 3.

Four exercises per week. 1st S.

8. Steam Engineering. Mr. Laton.

Continuation of Course 7. Recitations and lectures on boilers. First eight weeks.

Four exercises per week. 2nd S.

9. Steam Engineering. Mr. Laton.

Continuation of Courses 7 and 8. Recitations and lectures on valve gears. Last nine weeks.

Four exercises per week. 2nd S.

10. Materials of Construction. Prof. Read.

Recitations on the production, properties, uses and preservation of engineering materials. For Engineering Seniors.

Continuation of Courses 4 and 5.

Course 10 is open only to students who have completed Courses 4, 5 and 6.

Four exercises per week. 1st S.

11. Hydraulics. Prof. Read.

For Engineering Seniors.

Open only to students who have completed Courses 4 and 5.

Three exercises per week. 1st S.

12. Mechanical Laboratory. Prof. Read.

Tests of materials, boilers, engines, pumps, indicators, etc. For Engineering Seniors.

Course 12 is open only to students who have completed Courses 1 to 9 and must have completed or are completing Courses 10 and 11.

Three exercises per week. 1st S.

13. Mechanical Laboratory. Prof. Read.

Continuation of Course 12.

Two exercises per week. 2nd S.

14. Multiple Expansion Engines. Prof. Read.

For Engineering Seniors. First nine weeks.

Open only to students who have completed Courses 4, 5, 7 to 9 and 12.

Four exercises per week. 2nd S.

15. Gas and Hot Air Engines and Refrigerating Machinery. Prof. Read.

For Engineering Seniors. Last eight weeks.

Open only to students who have completed Courses 4, 5, 7 to 9, 12, 13 and 14.

Four exercises per week. 2nd S.

16. Contracts and Specifications. Prof. Putnam.

Recitations and lectures on the laws and forms of engineering contracts and specifications. Students in this course are required to draw up specifications, write a contract and make estimates on a piece of engineering work.

For Mechanical Engineering Seniors.

Two exercises per week. 1st S.

17. Hydraulic Motors. Prof. Read.

Principles of design and operation of water power plants. For Mechanical Engineering Seniors. First nine weeks.

Course 17 is open only to students who have completed Course 11.

Two exercises per week. 2nd S.

18. Concrete-Steel Construction. Prof. Read.

A study, from the current engineering papers, of the more recent developments in the design and construction of concrete-steel foundations, dams and buildings. For Mechanical Engineering Seniors. Last eight weeks.

Course 18 is open only to those who have taken Course 10.

Two exercises per week. 2nd S.

METEOROLOGY.

1. Meteorology. Prof. Pettee.

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes and methods of prediction of atmospheric changes. For Agricultural and General Seniors.

Two exercises per week. 1st S.

MILITARY SCIENCE AND TACTICS.

LIEUT. HUNT.

Each male student, unless a member of the Senior Class, or physically unfit, is required to drill and attend recitations in Military Science.

Military Science 1 to 8 inclusive consists of Military Drill and includes all the practical instruction in the following subjects: Advance and Rear Guards, Outposts, Marches, Ceremonies, Battalion Review, Parades and Guard Mounting, Calisthenics and Gymnastics, Rifle Practice, First Aid to the Injured.

1. Military Drill.

For Freshmen.

Two exercises per week. 1st S.

2. Military Drill.

Continuation of Course 1.

Two exercises per week. 2nd S.

3. Military Drill.

For Sophomores.

Two exercises per week. 1st S.

4. Military Drill.

Continuation of Course 3. For Sophomores.

Two exercises per week. 2nd S.

5. Military Drill.

For Juniors.

Two exercises per week. 1st S.

6. Military Drill.

Continuation of Course 5. For Juniors.

Two exercises per week. 2nd S.

7. Military Drill.

Elective for Seniors only.

Two exercises per week. 1st S.

8. Military Drill.

Continuation of Course 5. Elective for Seniors only.

Two exercises per week. 2nd S.

9. Infantry Drill Regulations.

Practical instruction and lectures. For Freshmen.

One exercise per week. 1st S.

10. Manual of Guard Duty and Small Arms Firing Regulations.

For Freshmen.

One exercise per week. 2nd S.

11. Security and Information.

For Sophomores.

One exercise per week. 1st S.

12. Military Map Reading and Sketching.

For Sophomores.

One exercise per week. 2nd S.

13. Field Service Regulations.

Preparation of problems requiring the issuing of field orders,* knowledge of marches, transportation, subsistence, etc. For Juniors.

One exercise per week. 1st S.

14. Army Regulations and Preparation of Requisitions,
etc.

For Juniors.

One exercise per week. 2nd S.

15. Army Organization and Administration.

Lectures and preparation of military papers. Elective for Seniors only.

One exercise per week. 1st S.

16. Army Organization and Administration.

Continuation of Course 15. Elective for Seniors only.

One exercise per week. 2nd S.

PHILOSOPHY.

ASSOC. PROF. HARRISON.

1. Psychology.

An introduction to the study of mental life. The practical needs of the student are related as closely as possible to the work of the course. For Sophomores and Seniors.

Three exercises per week. 1st S.

*2. The History of Educational Theory.

The greater part of the course is taken up with the study of the modern educational reformers: Comenius, Rousseau, Pestalozzi, Froebel, Spencer and Herbart. For Juniors and Seniors.

Three exercises per week. 1st S.

*3. Philosophy of Education.

The meaning of education is defined from the aspect of the biological, the physiological, the social, the psychological and the philosophical. Horne's Philosophy of Education. For Juniors and Seniors.

Three exercises per week. 2nd S.

*4. Educational Theory and Practice.

The method of the recitation with practical applications; free discussions of the teacher's problems; the meaning and aim of education. Practice work for the students who wish it is found in the public schools at and near Durham. Extra credit is given for practice teaching. For Juniors and Seniors.

Three exercises per week. 1st S.

*5. Introduction to Philosophy.

A general survey of the field of philosophy with special reference to the definition of its problems, its spirit, its method and its relation to the various sciences: the theory of thought and knowledge; the doctrine of nature and of mind. This course aims to acquaint students with the ultimate problems of thought and to suggest possible solutions. For Juniors and Seniors.

Three exercises per week. 2nd S.

PHYSICS.

PROF. NESBIT, ASST. PROF. ADAMS.

Courses 1 to 5 are taken consecutively by students of the Electrical and Mechanical Engineering Courses. Students in the Chemical Engineering Course take Courses 1, 2 and 6. Students in the Agricultural and General Courses take Courses 1 and 2. Course numbers 1-40 inclusive are reserved for the subjects taken by students in the Engineering Courses.

1. Mechanics and Heat.

Mechanics: The principles and laws of general physics are illustrated by a number of experiments, and the student is taught to make ready application of his mathematics in the solution of problems.

It is intended to provide a foundation in the dynamics of solids, liquids and gases, and also in the subjects of statics and hydrostatics.

*Courses 2 and 4 and 3 and 5 are given in alternate years.

Instruction is given by lectures, recitations and problem work. The text used is Ganot's Physics. Reference is made to Ames' Theory of Physics, Watson's Physics and other standard treatises.

The Electrical and Mechanical Students take up the use of the Slide Rule in connection with this course. Slide Rules should not be bought except upon advice of the instructor.

Heat: The theories of heat are briefly discussed. The subdivisions of the subject, such as the nature of heat, its effects, thermometry, sources of heat, the transference and transformations of heat are considered in detail. Constant attention is given to the relation of these topics to the subject of thermo-dynamics. Ganot's Physics is used as a text. For Engineering Sophomores.

Three exercises per week. 1st S.

2. Light, Sound and Electricity.

Light: The subject is approached from the geometrical and physical standpoint. A number of experiments are performed, illustrative of wave motion in general, followed by a study of that form of wave motion upon which the modern theory is based.

The subject is developed progressively and due attention is given to such subjects as reflection, refraction, color, the spectrum, and interference and polarization phenomena.

The student makes a careful study of optical instruments of all classes. Ganot's Physics is used as the text.

Sound: The course consists of lectures and recitations, considerable emphasis being laid upon the relation of the subject to the transmission of speech.

The text used is Stone's Elementary Lessons in Sound.

Electricity and Magnetism: Numerous experiments are performed to illustrate the various phenomena of electrostatics, magnetism, current electricity and electric waves. As the course advances, the attention of the student is constantly called to the applications of electricity to the arts and sciences. S. P. Thompson's Elementary Lessons in Electricity and Magnetism is used as a text. This course is required as a preparation for Electrical Engineering 1 to 4 and 22 to 23. For Sophomores.

Three exercises per week. 2nd S.

3. Elements of Least Squares and the Precision of Measurements.

This course is intended to serve as an introduction to the work in the Physical Laboratory. It familiarizes the student with the

precautions necessary in taking experimental data and of properly using his data in order to secure the most reliable results.

A large number of problems are solved, illustrating the determination of physical constants and in deducing the constants of empirical equations. Bartlett's Least Squares is used as a text in Least Squares. The work in Precision of Measurements consists of a course of lectures and the solution of a number of problems illustrating the application of the subject. For Engineering Juniors.

Two exercises per week. 1st S.

4. Physical Laboratory.

The apparatus employed in the experimental part of Courses 7 and 8 is adapted to no special laboratory manual, and either notes are prepared for students' use or reference is made to the works of Watson, Ames and Bliss, E. L. Nichols, H. M. Godwin and others.

The laws of general physics are investigated experimentally. The student is encouraged to acquire skill in the manipulation of apparatus, habits of clearness and neatness in keeping records, as well as enthusiasm for independent and original investigation.

A careful study is made of the Analytical Balance, time measuring devices, heat measurements, the microscope, spectroscope, lens combinations, photometry, the laws of vibrating strings and the simple electrical measurements. The student has practice in the calibration of galvanometers and ammeters, the determination of the constants of instruments, the measurement of voltages, resistances, etc.

On the completion of Course 5, an examination is given to test the student's knowledge of physical research, both in attacking a given problem and in thinking and acting for himself. For Engineering Juniors.

One exercise per week. 1st S.

5. Physical Laboratory.

A continuation of Course 4. For Engineering Juniors.

Three exercises per week. 2nd S.

A fee of five dollars per term is required in Courses 4 and 5 to cover breakages, etc. Any unexpended balance is refunded to the student at the close of the college year.

6. Physical Laboratory.

Physical Laboratory work. Similar to Courses 4 and 5. For Chemical Juniors.

Three exercises per week. 1st S.

POLITICAL SCIENCE.

PROF. SCOTT.

1. Political Economy.

An elementary course, with lectures upon some of the practical questions of the day. For General Course Sophomores, Agricultural Juniors and Engineering and Chemical Seniors.

Three exercises per week. 2nd S.

2. Laws of Business.

Recitations supplemented by lectures and the discussion of cases. For General Course Juniors and Seniors and Agricultural Seniors.

Three exercises per week. 1st S.

3. American Constitutional Law.

Use is made of Pomeroy's Constitutional Law, which is supplemented by the decisions of the United States Supreme Court. Special attention is given to the connections between American constitutions and American political history. For General Course and Agricultural Seniors.

Three exercises per week. 1st S.

4. Money and Banking.

Recitations, readings and lectures. For Agricultural Seniors and General Course Juniors and Seniors.

Courses 4 and 5 are given in alternate years. Course 4 will be offered in the year 1908-'09.

Open only to students who have completed Course 1.

Three exercises per week. 2nd S.

5. Public Finance.

Recitations, readings and lectures. For Agricultural Seniors and General Course Juniors and Seniors.

Courses 4 and 5 are given in alternate years. Course 5 will be offered in the year 1909-'10.

Open only to students who have completed Course 1.

Three exercises per week. 2nd S.

SHOP WORK.

DIRECTOR, PROF. READ, MR. BROWN, MR. INGHAM.

Three hours' work in the shop is reckoned as one exercise.

1. Wood Work. Mr. Ingham.

Exercises in carpentry work, joinery and pattern making.

Engineering Freshmen.

Two and one-half exercises per week. 1st S.

General Course Freshmen.

Two exercises per week. 1st S.

2. A Course in Forging, Giving the student Exercises in Upsetting, Drawing, Forming and Welding. Mr. Brown.

For Engineering Freshmen. Division 2. First ten weeks.

Two exercises per week. 2nd S.

3. Same as Course 2.

For Mechanical and Electrical Engineering Sophomores who have completed Chemistry 4.

Two exercises per week. 1st S.

4. A Course in Turning, Facing, Thread Cutting, Milling, Shaping, Scraping, Filing and Planing. Mr. Brown.

For Mechanical and Electrical Engineering Sophomores.

Two and one-half exercises per week. 2nd S.

5-8. A Course in Machine Shop Tools and Methods. Mr. Brown.

For Mechanical Engineering Juniors and Seniors.

Considerable time is given to tool room work in the making of fine tools, such as arbors and gauges; grinding both external and internal; tempering; the use of the electric pyrometer in connection with tempering and annealing; the use of the milling machine in connection with spiral and gear cutting; bench work in fine fitting; experimental work as to different cutting speeds and angles for various forms of tools as well as with different grades of tool steel, including high speed steel. Metallography of the heat treatment of steel.

A portion of the time is taken up in the reading and discussion of the various engineering periodicals, and excursions are made to large shops so that the student has an opportunity to see the above processes in practical operation.

5. Shop Work. Mr. Brown.

For Mechanical Engineering Juniors.

Two exercises per week. 1st S.

6. Shop Work. Mr. Brown.

For Mechanical Engineering Juniors.

Two exercises per week. 2nd S.

7. Shop Work. Mr. Brown.

For Mechanical Engineering Seniors.

Two exercises per week. 1st S.

8. Shop Work. Mr. Brown.

For Mechanical Engineering Seniors.

Two exercises per week. 2nd S.

11. Special Shop Work.

Work arranged to suit the needs of particular students.

12. Special Shop Work.

13. Wood Shop. Mr. Ingham.

Same as Course 1. For Agricultural Freshmen. Last nine weeks.

One and one half exercises per week. 1st S.

14. Forging. Mr. Brown.

For Agricultural Freshmen.

Two exercises per week. 2nd S.

15. Machine Shop. Mr. Brown.

Same as Course 4. For Chemical Seniors.

Two exercises per week. 1st S.

 SPANISH.

MR. SPENCER.

†1. Elementary Spanish.

Essentials of Spanish Grammar. Translation of modern Spanish prose. Stories and plays by modern authors will be read. Elective for General Course Students in Sophomore, Junior or Senior Year.

Three exercises per week. 1st S.

†2. Elementary Spanish.

Continuation of Course 1. Elective for General Course Students in Sophomore, Junior or Senior Year.

Three exercises per week. 2nd S.

 ZOOLOGY.

PROF. SANDERSON, MR. BARROWS, MR. SPOONER.

The courses in Zoölogy are arranged in sequence for those studying Agriculture or Economic Entomology, and for those desiring a more general course fitting them for teach-

†To be given only when elected by six or more students.

ing or for medical studies, though any courses offered may be taken by those who have completed previous courses necessary. See Biological Division, Agricultural Course, page .

1. General Entomology.

A general survey of the structure, habits and classification of the different orders of insects. Lectures, laboratory dissections and classification. For Agricultural and General Sophomores.

Three exercises per week. 1st S.

2. Economic Entomology.

Insects affecting crops, domestic animals, etc., their life, histories, habits and methods of combating them. Special consideration of general farm methods for control of insects affecting staple crops and of spraying, machinery and insecticides for combating truck and fruit insects. For Agricultural and General Sophomores completing Course 1.

Three exercises per week. 2nd S.

3. Vertebrate Anatomy and Physiology.

The comparison of anatomy and physiology of vertebrate animals, general physiology of higher animals, and laboratory dissections of a few typical forms. For Agricultural and General Juniors.

Four exercises per week. 1st S.

4. Advanced Economic Entomology.

The methods of study and general principles of combating insect pests; the literature and history of economic entomology; practice in determining and rearing and combating insect pests. For Agricultural Juniors or Seniors having completed Course 2.

Three exercises per week. 2nd S.

5. Advanced Entomology.

Advanced work in General Entomology; collecting, classification and anatomical studies. For students having completed Course 1.

Three exercises per week. 2nd S.

*6. Invertebrate Zoölogy.

The structure and life of the invertebrate animals, except insects. Lectures and laboratory dissections of typical forms. Elective for Agricultural Seniors and General Course Students.

Four exercises per week. 1st S.

†7. General Physiology.

The vital phenomena of animal life with special reference to the nervous, digestive, muscular, secretory and sensory processes in the higher animal forms. For Agricultural and General Course Juniors or Seniors.

Three exercises per week. 2nd S.

8. Evolution.

Lectures taking up the problems of variation, heredity, breeding, and selection from an experimental standpoint, and discussions of recent theories with their bearings on the question of evolution. This course is a basis for advanced work in plant and animal breeding. Required of Agricultural Seniors, elective in General Course.

Three exercises per week. 1st S.

10 and 11. Advanced Zoölogy.

Three or four exercises per week for the year. For students who elect Zoölogy for Senior year to be arranged to suit individual needs. Open to students who have completed previous courses and have shown proficiency in Zoölogy.

†12. Biological Seminar.

Reports and discussions upon current literature of Zoölogy and Botany, special topics and observations. For Agricultural and General Juniors and Seniors.

One hour per week through the year.

† To be given only when elected by four or more students.

FOUR-YEAR COURSES.

COURSES OF STUDY AND SCHEDULE OF HOURS.

(For details see Description of Studies.)

Attendance at Chapel exercises is required of all students and attendance at Military Drill is required of all male students, except Seniors.

AGRICULTURAL COURSE.

FRESHMAN YEAR.

FIRST SEMESTER.

	Credit hours
<i>Chemistry 1</i>	Inorganic Chemistry 3
<i>Drawing 1</i>	Industrial Drawing 2
<i>English 1</i>	English Composition and Rhetoric 3
<i>French 1 or</i>	Elementary French } 3
<i>German 1</i>	Elementary German }
<i>Horticulture 1</i>	Principles of Horticulture (first eight weeks) 1½
<i>Mathematics 1</i>	Algebra 4
* <i>Mathematics 2</i>	Solid Geometry 2
<i>Military Science 1</i>	Drill 1
<i>Military Science 2</i>	Infantry Drill Regulations 1
<i>Shop Work 13</i>	Wood Shop (last nine weeks) ... 1½

SECOND SEMESTER.

<i>Chemistry 2</i>	Inorganic Chemistry 2
<i>Drawing 4</i>	Design of Farm Buildings 2
<i>English 2</i>	English Composition and Rhetoric 3
<i>French 2 or</i>	Continuation of French 1 } 3
<i>German 2</i>	Continuation of German 1 }
<i>Horticulture 2</i>	Olericulture 2
<i>Mathematics 3</i>	Trigonometry (first ten weeks). 2½
<i>Mathematics 4</i>	Surveying (last seven weeks) ... 1½
<i>Military Science 2</i>	Drill 1

* May be taken as an elective in addition to required work by students entering without the subject.

<i>Military Science</i> 10	Manual of Guard Duty, etc.	1
<i>Shop Work</i> 14	Forge Shop	2

SOPHOMORE YEAR.

FIRST SEMESTER.

<i>Agriculture</i> 8	Breeds of Livestock.....	3
<i>Botany</i> 3	General Botany	3
<i>Chemistry</i> 4	Qualitative Analysis	3
<i>German</i> 3	German Prose of the Nineteenth Century	3
<i>Military Science</i> 3	Drill	1
<i>Military Science</i> 11	Security and Information	1
<i>Physics</i> 1	Mechanics and Heat	3
<i>Zoölogy</i> 1	General Entomology	3

SECOND SEMESTER.

<i>Botany</i> 4	General Botany	3
<i>Chemistry</i> 6	Organic Chemistry	3
<i>Forestry</i> 1	Arboriculture and Forestry	3
<i>German</i> 4	Scientific German	3
<i>Military Science</i> 4	Drill	1
<i>Military Science</i> 12	Military Map Reading and Sketching	1
<i>Physics</i> 2	Light, Sound and Electricity	3
<i>Zoölogy</i> 2	Economic Entomology	3

JUNIOR YEAR.

FIRST SEMESTER.

<i>Agriculture</i> 1	Farm Equipment	3
<i>Agriculture</i> 9	Principles of Breeding	2
* <i>Botany</i> 5 or	Plant Pathology	4
* <i>Zoölogy</i> 3	Vertebrate Anatomy and Physi- ology	4
<i>Chemistry</i> 7	Chemistry of Plant and Animal Nutrition	2
<i>Dairying</i> 1	Farm Dairying	4
<i>Horticulture</i> 4	Pomology	3
<i>Military Science</i> 5	Drill	1
<i>Military Science</i> 13	Field Service Regulations	1

* Botany 5 should be elected by students intending to specialize in Horticulture.

* Zoölogy 3 should be elected by those intending to specialize in Animal Husbandry or Zoölogy.

SECOND SEMESTER.

<i>Agriculture 2</i>	Soils	3
<i>Agriculture 10</i>	Stock Feeding	3
* <i>Agriculture 11</i>	Veterinary Science	3
* <i>Botany 6 or</i>	Mycology	}
* <i>Botany 8</i>	Plant Histology	
<i>Geology 1</i>	Mineralogy	2
<i>Geology 2</i>	Elementary Geology	3
* <i>Horticulture 3</i>	Greenhouse Management	3
<i>Military Science 6</i>	Drill	1
<i>Military Science 14</i>	Army Regulations	1
<i>Political Science 1</i>	Political Economy	3
* <i>Zoölogy 4 or</i>	Advanced Economic Entomology	}
* <i>Zoölogy 5 or</i>	Advanced Entomology	
* <i>Zoölogy 7</i>	General Physiology	

SENIOR YEAR.

FIRST SEMESTER.

	Credit hours
<i>Agriculture 5</i>	Agricultural Seminar
<i>History 5</i>	American History to 1783.....
<i>Meteorology 1</i>	Meteorology
<i>Thesis</i>	.....
<i>Zoölogy 8</i>	Evolution
<i>Elective Courses</i>	.....

SECOND SEMESTER.

<i>Agriculture 6</i>	Agr. History and Economics (first nine weeks)
<i>Agriculture 7</i>	Farm Mechanics (last eight weeks)
<i>English 6</i>	English Literature
<i>History 6</i>	Const. and Political History of U. S. (1783-1837)
<i>Thesis</i>	.....
<i>Elective Courses</i>	.....

During the Junior Year students who desire and are qualified to take up work in the Biological or Chemical Divisions of the Agricultural Course may substitute work in these divisions for Dairying 1 and Agriculture 10.

* Elective.

ENGINEERING COURSES.

FRESHMAN YEAR.

FIRST SEMESTER.

<i>Chemistry 1</i>	Inorganic Chemistry	3
<i>Drawing 1</i>	Industrial Drawing	2½
<i>English 1</i>	English Composition and Rhetoric	3
<i>French 1 or</i>	Elementary French }	3
<i>German 1</i>	Elementary German }	
<i>Mathematics 1</i>	Algebra	4
† <i>Mathematics 2</i>	Solid Geometry	2
<i>Military Science 1</i>	Drill	1
<i>Military Science 9</i>	Infantry Drill Regulations	1
<i>Shop Work 1</i>	Wood Work	2½

SECOND SEMESTER.

<i>Chemistry 2</i>	Inorganic Chemistry.....	2
<i>Chemistry 4</i>	Qualitative Analysis (first division)	3
<i>Drawing 2</i>	Descriptive Geometry (first division)	3
<i>Drawing 2</i>	Descriptive Geometry (second division), (first ten weeks)	2
<i>Drawing 3</i>	Continuation of Drawing 2 (second division), (last seven weeks)	2
<i>English 2</i>	English Composition and Rhetoric	3
<i>French 2 or</i>	Continuation of French 1 }	3
<i>German 2</i>	Continuation of German 1 }	
<i>Mathematics 3</i>	Trigonometry (first ten weeks)..	2½
<i>Mathematics 4</i>	Surveying (last seven weeks)...	1½
<i>Military Science 2</i>	Drill	1
<i>Military Science 10</i>	Manual of Guard Duty, etc.....	1
<i>Shop Work 2</i>	Forging (second division) (first ten weeks)	2

† For Freshmen entering without the subject.

CHEMICAL ENGINEERING COURSE.

SOPHOMORE YEAR.

FIRST SEMESTER.

		Credit hours
<i>Chemistry 5</i>	Qualitative Analysis (first five weeks)	1½
<i>Chemistry 10</i>	Quantitative Analysis (last twelve weeks)	3½
<i>Drawing 7</i>	Elementary Machine Drawing and Free Hand Drawing of Chem. Apparatus	2
<i>German 3</i>	German Prose of the Nineteenth Century	3
<i>Mathematics 5</i>	Analytic Geometry	5
<i>Military Science 3</i>	Drill	1
<i>Military Science 11</i>	Security and Information	1
<i>Physics 1</i>	Mechanics and Heat.....	3

SECOND SEMESTER.

<i>Chemistry 6</i>	Organic Chemistry	3
<i>Chemistry 11</i>	Quantitative Analysis	6
<i>German 4</i>	Scientific German	3
<i>Mathematics 6</i>	Calculus	5
<i>Military Science 4</i>	Drill	1
<i>Military Science 12</i>	Military Map Reading and Sketching	1
<i>Physics 2</i>	Light, Sound and Electricity	3

JUNIOR YEAR.

FIRST SEMESTER.

<i>Chemistry 7</i>	Chemistry of Plant and Animal Nutrition	2
<i>Chemistry 12</i>	Advanced Quantitative Analysis..	5
<i>Chemistry 19</i>	Chemical Journals	2
<i>Chemistry 21</i>	Physical Chemistry (in alternate years)	2
<i>Mech. Engineering 4</i>	Mechanics of Engineering (first) ten weeks	3
<i>Mech. Engineering 6</i>	Graphic Statics (last seven weeks)	
<i>Military Science 5</i>	Drill	1
<i>Military Science 13</i>	Field Service Regulations	1
<i>Physics 6</i>	Physical Laboratory	3

SECOND SEMESTER.

Credit hours.

<i>Chemistry</i> 8	Organic Chemical Laboratory ...	3
<i>Chemistry</i> 13	Advanced Quantitative Analysis.	4
† <i>Chemistry</i> 14 and	Industrial Chemistry	} 2
† <i>Chemistry</i> 15 or	Metallurgy	
† <i>Chemistry</i> 22	Physical and Electro-chemistry	3
<i>Chemistry</i> 20	Chemical Journals	2
<i>Geology</i> 1	Mineralogy	2
<i>Mech. Engineering</i> 5	Mechanics of Engineering	4
<i>Military Science</i> 6	Drill	1
<i>Military Science</i> 14	Army Regulations	1

SENIOR YEAR.

FIRST SEMESTER.

<i>Chemistry</i> 21	Physical Chemistry (in alternate years)	2
<i>Chemistry</i> 23	Chemical Research and Thesis...	8
<i>Elect. Engineering</i> 51	Industrial Electricity	3
<i>Mech. Engineering</i> 7	Steam Engineering	4
* <i>Military Science</i> 7	Drill	1
* <i>Military Science</i> 15	Army Organization and Administration	1
<i>Shop Work</i> 15	Machine Shop	2

SECOND SEMESTER.

† <i>Chemistry</i> 14 and	Industrial Chemistry	} 2
† <i>Chemistry</i> 15 or	Metallurgy	
† <i>Chemistry</i> 22	Physical and Electro-chemistry	3
<i>Chemistry</i> 16	Assaying	1
<i>Chemistry</i> 24	Thesis	8
<i>Elect. Engineering</i> 52	Industrial Electricity	3
<i>English</i> 6	English Literature	3
* <i>Military Science</i> 8	Drill	1
* <i>Military Science</i> 16	Army Organization and Administration	1
<i>Political Science</i> 1	Political Economy	3

† Given in alternate years.

* Elective.

ELECTRICAL AND MECHANICAL ENGINEERING COURSES.

SOPHOMORE YEAR.

FIRST SEMESTER.

Credit hours.

<i>Chemistry</i> 4	Qualitative Chemical Analysis...	3
<i>Drawing</i> 5	Descriptive Geometry (first division) (first seven weeks)....	1
* <i>Drawing</i> 6	Elementary Machine Drawing (first division), (last ten weeks)	1½
<i>Drawing</i> 6	Elementary Machine Drawing (second division)	2
<i>German</i> 3	German Prose of the Nineteenth Century	3
<i>Mathematics</i> 5	Analytic Geometry	5
<i>Mech. Engineering</i> 1	Mechanism	3
<i>Military Science</i> 3	Drill ...	1
<i>Military Science</i> 11	Security and Information.....	1
<i>Physics</i> 1	Mechanics and Heat.....	3
† <i>Shop Work</i> 3	Forging (first division).....	2

SECOND SEMESTER.

<i>Drawing</i> 8	Machine Drawing	2½
<i>German</i> 4	Scientific German	3
<i>Mathematics</i> 6	Calculus	5
<i>Mech. Engineering</i> 2	Mechanism (first ten weeks)....	3
<i>Mech. Engineering</i> 3	Elementary Steam Engineering (last seven weeks).....	3
<i>Military Science</i> 4	Drill	1
<i>Military Science</i> 12	Military Map Reading and Sketching	1
<i>Physics</i> 2	Light, Sound and Electricity.....	3
<i>Shop Work</i> 4	Machine Shop	2½

ELECTRICAL ENGINEERING COURSE.

JUNIOR YEAR.

FIRST SEMESTER.

Credit hours.

<i>Elect. Engineering</i> 1	Direct Currents and Dynamos...	3
<i>Elect. Engineering</i> 3	Theoretical Electricity	3

† For Students who have taken Chemistry 4.

* Elective.

Credit hours.

<i>Machine Design</i> 1	Elementary Machine Design.....	2
<i>Mech. Engineering</i> 4	Mechanics of Engineering (first ten weeks)	2½
<i>Mech. Engineering</i> 6	Graphic Statics (last seven weeks)	1½
<i>Mech. Engineering</i> 7	Steam Engineering	4
<i>Military Science</i> 5	Drill	1
<i>Military Science</i> 13	Field Service Regulations	1
<i>Physics</i> 3	Least Squares	2
<i>Physics</i> 4	Physical Laboratory	1

SECOND SEMESTER.

<i>Elect. Engineering</i> 2	Direct Current Dynamos and Mo- tors	2
<i>Elect. Engineering</i> 4	Theoretical Electricity	4
<i>Machine Design</i> 2	Elementary Machine Design.....	2
<i>Mech. Engineering</i> 5	Mechanics of Engineering.....	4
<i>Mech. Engineering</i> 8	Steam Engineering (first eight weeks)	4
<i>Mech. Engineering</i> 9	Steam Engineering (last nine weeks)	
<i>Military Science</i> 6	Drill	1
<i>Military Science</i> 14	Army Regulations	1
<i>Physics</i> 5	Physical Laboratory	3

SENIOR YEAR.

FIRST SEMESTER.

<i>Elect. Engineering</i> 5	Theoretical Electricity	6
<i>Elect. Engineering</i> 20	Telephone (first six weeks).....	1
<i>Elect. Engineering</i> 21	Telegraph (seven-twelve weeks)	1
<i>Elect. Engineering</i> 22	Electric Railroads etc. (last five weeks)	1
<i>Elect. Engineering</i> 31	Electrical Laboratory	2
<i>Mech. Engineering</i> 10	Materials of Construction.....	4
<i>Mech. Engineering</i> 11	Hydraulics	3
<i>Mech. Engineering</i> 12	Mechanical Laboratory.....	3
* <i>Military Science</i> 7	Drill	1
* <i>Military Science</i> 15	Army Organization and Adminis- tion	1

SECOND SEMESTER.

<i>Elect. Engineering</i> 6	Theoretical Electricity (first ten weeks)	3
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* Elective.

Credit hours.

<i>Elect. Engineering</i> 7	Alternating Current Phenomena (last seven weeks).....	2
<i>Elect. Engineering</i> 23	Electric Lighting (first nine weeks)	1
<i>Elect. Engineering</i> 24	High Tension Power Transmis- sion (last eight weeks)	1
<i>Elect. Engineering</i> 32	Electrical Laboratory	2
<i>Elect. Engineering</i> 33	Thesis	3
<i>Mech. Engineering</i> 13	Mechanical Laboratory	2
<i>Mech. Engineering</i> 14	Multiple Expansion Engines (first nine weeks)	2
<i>Mech. Engineering</i> 15	Gas, Hot Air Engines and Refrig- erating Machinery (last eight weeks)	2
* <i>Military Science</i> 8	Drill	1
* <i>Military Science</i> 16	Army Organization and Admin- istration	1
<i>Political Science</i> 1	Political Economy	3

MECHANICAL ENGINEERING COURSE.

JUNIOR YEAR.

FIRST SEMESTER.

Credit hours.

<i>Elect. Engineering</i> 41	Elements of Electrical Engineer- ing	3
<i>Machine Design</i> 1	Elementary Machine Design.....	2
<i>Mech. Engineering</i> 4	Mechanics of Engineering (first ten weeks)	2½
<i>Mech. Engineering</i> 6	Graphic Statics (last seven weeks)	1½
<i>Mech. Engineering</i> 7	Steam Engineering	4
<i>Military Science</i> 5	Drill	1
<i>Military Science</i> 13	Field Service Regulations	1
<i>Physics</i> 3	Least Squares	2
<i>Physics</i> 4	Physical Laboratory	1
<i>Shop Work</i> 5	Machine Shop	2

SECOND SEMESTER.

<i>Elect. Engineering</i> 42	Elements of Electrical Engineer- ing (first eight weeks).....	1½
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* Elective.

Credit hours.

<i>Elect. Engineering</i> 43	Alternating Currents (last nine weeks)	1½
<i>Machine Design</i> 2	Elementary Machine Design.....	2
<i>Mech. Engineering</i> 5	Mechanics of Engineering.....	4
<i>Mech. Engineering</i> 8	Steam Engineering (first eight weeks)	2
<i>Mech. Engineering</i> 9	Steam Engineering (last nine weeks)	2
<i>Military Science</i> 6	Drill	1
<i>Military Science</i> 14	Army Regulations	1
<i>Physics</i> 5	Physical Laboratory	3
<i>Shop Work</i> 6	Machine Shop	2

SENIOR YEAR.

FIRST SEMESTER.

<i>Elect. Engineering</i> 44	Alternating Currents (first eight weeks)	1½
<i>Elect. Engineering</i> 45	Applications of Electricity (last nine weeks)	1½
<i>Machine Design</i> 3	Advanced Machine Design.....	4
<i>Mech. Engineering</i> 10	Materials of Construction.....	4
<i>Mech. Engineering</i> 11	Hydraulics	3
<i>Mech. Engineering</i> 12	Mechanical Laboratory	3
<i>Mech. Engineering</i> 16	Contracts and Specifications.....	2
* <i>Military Science</i> 7	Drill	1
* <i>Military Science</i> 15	Army Organization and Administration	1
<i>Shop Work</i> 7	Machine Shop	2

SECOND SEMESTER.

<i>Machine Design</i> 4	Mill Engineering Design.....	4
<i>Mech. Engineering</i> 13	Mechanical Laboratory	2
<i>Mech. Engineering</i> 14	Multiple Expansion Engines (first nine weeks)	2
<i>Mech. Engineering</i> 15	Gas and Hot Air Engines and Refrigerating Machinery (last eight weeks)	2
<i>Mech. Engineering</i> 17	Hydraulic Motors (first nine weeks)	1
<i>Mech. Engineering</i> 18	Concrete-Steel Construction (last eight weeks)	1

* Elective.

	Credit hours.
<i>*Military Science 8</i>	Drill 1
<i>*Military Science 16</i>	Army Organization and Administration 1
<i>Political Science 1</i>	Political Economy 3
<i>Shop Work 8</i>	Machine Shop 2
<i>Thesis</i>	..... 2

GENERAL COURSE.

Attendance at Physical Exercise is required of all women students.

FRESHMAN YEAR.

Elect courses to make at least 16 hrs.

FIRST SEMESTER.

	Credit hours.
<i>Chemistry 1</i>	Inorganic Chemistry 3
<i>*Drawing 1</i>	Industrial Drawing 2
<i>English 1</i>	English Composition and Rhetoric 3
<i>French 1 or</i>	Elementary French }
<i>German 1</i>	Elementary German }
<i>*History 1</i>	History of Europe from 476 to 1492 3
<i>Mathematics 1</i>	Algebra 4
<i>†Mathematics 2</i>	Solid Geometry 2
<i>Military Science 1</i>	Drill 1
<i>Military Science 9</i>	Infantry Drill Regulations..... 1
<i>Physical Exercise</i>	..... 1
<i>*Shop Work 1</i>	Wood Work 2

SECOND SEMESTER.

<i>Chemistry 2</i>	Inorganic Chemistry 2
<i>*Drawing 16</i>	Free Hand or Charcoal Drawing. 1½
<i>English 2</i>	English Composition and Rhetoric 3
<i>French 2 or</i>	Continuation of French 1 }
<i>German 2</i>	Continuation of German 1 }
<i>History 2</i>	History of Europe from 1492 to 1715 3

* Elective.

† May be taken as an elective in addition to required work by Freshmen entering without the subject.

Credit hours.

<i>Mathematics</i> 3	Trigonometry (first ten weeks) ..	2½
* <i>Mathematics</i> 4	Surveying (last seven weeks) ...	1½
<i>Military Science</i> 2	Drill	1
<i>Military Science</i> 10	Manual of Guard Duty.....	1
<i>Physical Exercise</i>	.....	1

SOPHOMORE YEAR.

During the Sophomore, Junior and Senior Years students of the General Course will elect at least 16 credit hours each semester, including the required work of the Sophomore Year, according to the group system. Military Science and Drill are required during the Sophomore and Junior Years of all male students; women students are required to take Physical Exercise.

The group system requires that all General Course students shall elect one *major* and two *minor* courses; the *major* to consist of fifteen credit hours in one subject in any of the three groups, in addition to the required work of the Freshman Year; and the *minor* to consist of twelve credit hours in one subject in each of the other two groups, in addition to the required work of the Freshman Year. The thesis must be prepared in the major subject.

GROUP I.

Languages and Literature—English; French; German.

GROUP II.

Mathematics and Sciences—Mathematics; Zoölogy; Drawing; Agriculture; Mechanical Engineering; Electrical Engineering; Chemistry; Botany; Physics.

GROUP III.

History, Social Science and Philosophy—History; Political Science; Philosophy and Pedagogy.

In addition to the elective studies listed below, students of the General Course may pursue studies in the Engineering or Agricultural Courses for which they are qualified, upon the approval of the head of the department concerned.

SOPHOMORE YEAR.

Credit hours.

FIRST SEMESTER.

<i>Botany</i> 3 or	General Botany	}	3
<i>Zoölogy</i> 1 or	General Entomology		
<i>Zoölogy</i> 6	Invertebrate Zoölogy		

* Elective.

		Credit hours.
* <i>Chemistry</i> 4	Qualitative Analysis	3
* <i>Drawing</i> 9	Free Hand Drawing.....	2
* <i>English</i> 3	Advanced English Composition and Criticism	3
<i>German</i> 3	German Prose of the Nineteenth Century	3
* <i>History</i> 1 or	History of Europe from 476 to 1492	3
* <i>History</i> 3	History of Europe from 1715 to 1815	
* <i>Mathematics</i> 5	Analytic Geometry	5
<i>Military Science</i> 3	Drill	1
<i>Military Science</i> 11	Security and Information.....	1
<i>Physical Exercise</i>	.....	1
* <i>Physics</i> 1	Mechanics and Heat.....	3

SECOND SEMESTER.

<i>Botany</i> 4 or	General Botany	3
<i>Zoölogy</i> 2 or	Economic Entomology	
<i>Zoölogy</i> 5	Advanced Entomology	
* <i>Drawing</i> 10	Free Hand Drawing.....	2
† <i>English</i> 6	English Literature	3
<i>German</i> 4	Scientific German	3
* <i>History</i> 2 or	History of Europe from 1492 to 1715	3
* <i>History</i> 4	History of Europe since 1815	
* <i>Mathematics</i> 6	Calculus	5
<i>Military Science</i> 4	Drill	1
<i>Military Science</i> 12	Military Map Reading and Sketching	1
<i>Physical Exercise</i>	.....	1
* <i>Physics</i> 2	Light, Sound and Electricity.....	3
* <i>Philosophy</i> 1	Psychology	3
<i>Political Science</i> 1	Political Economy	3

JUNIOR YEAR.

FIRST SEMESTER.

Sixteen exercises required. All elective except Military Science and Drill.

* Elective.

† Required in Sophomore year or Junior year.

Credit hours.

<i>Botany</i> 5	Plant Pathology	4
<i>Botany</i> 7	Plant Physiology	3
<i>Chemistry</i> 4	Qualitative Analysis	3
<i>Chemistry</i> 7	Chemistry of Plant Growth.....	2
<i>Drawing</i> 11	Architectural Drawing	3
<i>English</i> 3	Advanced English Composition..	3
<i>French</i> 3	Scientific French	3
<i>History</i> 5	American History to 1783.....	3
<i>Mathematics</i> 7	Differential Equations	2
<i>Military Science</i> 5	Drill	1
<i>Military Science</i> 13	Field Service Regulations.....	1
<i>Philosophy</i> 2	History of Educational Theory..	3
<i>Physical Exercise</i>	.....	1
<i>Physics</i> 3	Least Squares and Precision of Measurements	2
<i>Physics</i> 4	Physical Laboratory	1
<i>Political Science</i> 2	Laws of Business.....	3
<i>Spanish</i> 1	Elementary Spanish	3
<i>Zoölogy</i> 3	Vertebrate Anatomy and Physi- ology	4
<i>Zoölogy</i> 6	Invertebrate Zoölogy	4
<i>Zoölogy</i> 8	Evolution	3

SECOND SEMESTER.

<i>Botany</i> 6	Mycology	3
<i>Botany</i> 8	Plant Histology	3
<i>Chemistry</i> 6	Organic Chemistry.....	3
<i>Chemistry</i> 8	Organic Chemical Laboratory...	3
<i>Drawing</i> 12	Architectural Drawing	3
<i>English</i> 4	English Drama	3
<i>English</i> 6	English Literature	3
<i>French</i> 4	French Prose, History and Travel	3
<i>Geology</i> 1	Mineralogy	2
<i>Geology</i> 2	Elementary Geology	3
<i>History</i> 6	Const. and Political History of U. S., 1783-1837.....	3
<i>Mathematics</i> 8	Quaternions	2
<i>Military Science</i> 6	Drill	1
<i>Military Science</i> 14	Army Regulations	1
<i>Philosophy</i> 3	Philosophy of Education.....	3
<i>Philosophy</i> 5	Introduction to Philosophy.....	3
<i>Physical Exercise</i>	.....	1

Credit hours.

<i>Physics</i> 5	Physical Laboratory	3
<i>Political Science</i> 4 or	Money and Banking }	3
<i>Political Science</i> 5	Public Finance }	
<i>Spanish</i> 2	Continuation of Spanish 1.....	3
<i>Zoölogy</i> 7	General Physiology	3

SENIOR YEAR.

Sixteen exercises required; all elective.

FIRST SEMESTER.

<i>Botany</i> 5 or	Plant Pathology }	3
<i>Botany</i> 7 or	Plant Physiology }	
<i>Botany</i> 9	Advanced Botany }	
<i>Drawing</i> 13	Advanced Architectural Drawing	3
<i>Elect. Engineering</i> 61	Industrial Electricity	3
<i>English</i> 5	English Novel	3
<i>French</i> 5	French Prose, Sight Reading....	3
<i>Geology</i> 3	Historical Geology	3
<i>German</i> 5	Goethe, His Life and Works.....	3
<i>History</i> 7	Const. and Political History of U. S. since 1837.....	3
<i>Meteorology</i> 1	Meteorology	2
<i>Military Science</i> 7	Drill	1
<i>Military Science</i> 15	Army Organization and Adminis- tration	1
<i>Philosophy</i> 1	Psychology	3
<i>Philosophy</i> 2	History of Educational Theory...	3
<i>Philosophy</i> 4	Educational Theory and Practice	3
<i>Physical Exercise</i>	.....	1
<i>Political Science</i> 2	Laws of Business	3
<i>Political Science</i> 3	American Constitutional Law....	3
<i>Spanish</i> 1	Elementary Spanish	3
<i>Thesis</i>	.....	2
<i>Zoölogy</i> 6	Invertebrate Zoölogy	4
<i>Zoölogy</i> 8	Evolution	3
<i>Zoölogy</i> 10	Advanced Zoölogy	3 or 4

SECOND SEMESTER.

<i>Botany</i> 6 or	Mycology }	3
<i>Botany</i> 8 or	Plant Histology }	
<i>Botany</i> 10	Advanced Botany }	
<i>Drawing</i> 14	Advanced Architectural Drawing	2

Credit hours.

<i>English</i> 4	English Drama	3
<i>English</i> 5	English Novel	3
<i>English</i> 7	American Literature	4
<i>French</i> 6	Continuation of French 5.....	3
<i>Geology</i> 2	Elementary Geology	3
<i>German</i> 6	Goethe (continued)	3
<i>History</i> 4	History of Europe since 1815....	3
<i>Mathematics</i> 9	Astronomy	2
<i>Military Science</i> 8	Drill	1
<i>Military Science</i> 16	Army Organization and Adminis- tration	1
<i>Philosophy</i> 5	Introduction to Philosophy.....	3
<i>Physical Exercise</i>	.....	1
<i>Political Science</i> 4 or	Money and Banking }	3
<i>Political Science</i> 5	Public Finance }	
<i>Spanish</i> 2	Continuation of Spanish 1.....	3
<i>Thesis</i>	.....	1 or 2
<i>Zoölogy</i> 7	General Physiology	3
<i>Zoölogy</i> 11	Advanced Zoölogy	3 or 4

FOUR YEAR COURSES.

HOURS OF STUDY.

AGRICULTURAL COURSE—FRESHMAN YEAR

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....		Mathematics 1	Chemistry 1	Military Sci. 1	Drawing 1
Tuesday.....	English 1	French 1 German 1	Mathematics 1	Military Sci. 9	Drawing 1
Wednesday.....			Chemistry 1	Horticulture 1 (First eight weeks)	Horticulture 1 (First eight weeks) Shop Work 18 (Last nine weeks)
Thursday.....	English 1	French 1 German 1	Mathematics 1	Mathematics 1	Shop Work 13 (Last nine weeks) Horticulture 1 (First eight weeks)
Friday.....			Chemistry 1	Military Sci. 1	Horticulture 1 (First eight weeks) Shop Work 13 (Last nine weeks)
Saturday.....	English 1	French 1 German 1	Mathematics 1	Mathematics 1	

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Military Sci. 10		Chemistry 2	Military Sci. 2	Mathematics 4 (Last seven weeks) Shop Work 14 (First ten weeks)
Tuesday.....	English 2	French 2 German 2		Mathematics 3 (First ten weeks)	Mathematics 4 (Last seven weeks) Shop Work 14 (First ten weeks)
Wednesday ...	Drawing 4	Drawing 4	Horticulture 2	Mathematics 3 (First ten weeks)	Mathematics 4 (Last seven weeks) Drawing 4 (First ten weeks)
Thursday.....	English 2	French 2 German 2	Mathematics 3 (First ten weeks)	Mathematics 3 (First ten weeks)	Horticulture 2
Friday.....	Drawing 4	Drawing 4	Chemistry 2	Military Sci. 2.	Mathematics 4 (Last seven weeks) Drawing 4 (First ten weeks)
Saturday.....	English 2	French 2 German 2	Mathematics 3 (First ten weeks)	Mathematics 3 (First ten weeks)	

SECOND SEMESTER

Mathematics 2, First Semester, hours to be arranged.

AGRICULTURAL COURSE—SOPHOMORE YEAR.

DAY	8-9	9-10	10-11	11-12	P. M.
Monday.....		Zoölogy 1	*Botany 3	*Military Sci. 3	Chemistry 4
Tuesday.....			Physics 1	German 3	Chemistry 4
Wednesday.....	Agriculture 8		Botany 3	Botany 3	Chemistry 4
Thursday.....	Zoölogy 1	Zoölogy 1	Physics 1	German 3	Agriculture 8
Friday.....	Agriculture 8		*Military Sci. 11	*Military Sci. 3	Zoölogy 1
Saturday.....	Botany 3	Botany 3	Physics 1	German 3	

FIRST SEMESTER

DAY	8-9	9-10	10-11	11-12	P. M.
Monday.....	Chemistry 6	Zoölogy 2	*Botany 4	*Military Sci. 4	Forestry 1
Tuesday.....		Chemistry 6	Physics 2	German 4	Botany 4
Wednesday.....	Forestry 1		Military Sci. 12		Botany 4
Thursday.....		Chemistry 6	Physics 2	German 4	
Friday.....	Forestry 1		*Zoölogy 2	*Military Sci. 4	Zoölogy 2
Saturday.....			Physics 2	German 4	

SECOND SEMESTER

* These periods are transposed from December 1 to March 31.

AGRICULTURAL COURSE—JUNIOR YEAR

FIRST SEMESTER					
Day.	8-9	9-10	10-11	11-12	P. M.
Monday.....		Agriculture 9	Horticulture 4	Military Sci. 5	Zoölogy 3 Botany 5
Tuesday.....	Chemistry 7	Agriculture 9	Agriculture 9	Agriculture 1	Horticulture 4
Wednesday.....	Chemistry 7	Dairying 1	Zoölogy 3 Botany 5		Horticulture 4
Thursday.....	Dairying 1	Dairying 1	Dairying 1	Agriculture 1	Zoölogy 3 Botany 5
Friday.....	Dairying 1	Dairying 1	Zoölogy 3 Botany 5	Military Sci. 5	Agriculture 1
Saturday.....	Dairying 1	Dairying 1	Dairying 1	Military Sci. 13	
SECOND SEMESTER					
Monday.....	Geology 1	Geology 1	Geology 2	Military Sci. 6	Agriculture 2
Tuesday.....		Political Sci. 1	*Agriculture 11 *Horticulture 3	Agriculture 2	Botany 6 or 8 *Horticulture 3 *Zoölogy 4 or 5
Wednesday.....	*Botany 6 or 8	*Botany 6 or 8	Agriculture 10	Agriculture 2	*Agriculture 11 *Horticulture 3 *Zoölogy 4 or 5
Thursday.....		Political Sci. 1	Agriculture 10	Geology 2	Geology 2
Friday.....	Geology 1	Geology 1	*Agriculture 11	Military Sci. 6	Agriculture 10
Saturday.....		Political Sci. 1	*Botany 6 or 8 *Zoölogy 4	Military Sci. 14	

* Elective.

For hours of courses not scheduled, see instructor.

AGRICULTURAL COURSE—SENIOR YEAR

FIRST SEMESTER					
DAY	8-9	9-10	10-11	11-12	P. M.
Monday	*Zoölogy 6		*Agriculture 14		*Agriculture 3
Tuesday	Zoölogy 8	*Zoölogy 6	History 5		Agriculture 5
Wednesday		Meteorology 1		*Agriculture 3	*Agriculture 14
Thursday	Zoölogy 8	*Botany 7	History 5	*Agriculture 14	*Botany 7
Friday		Meteorology 1	*Botany 7		*Agriculture 3
Saturday	Zoölogy 8		History 5		*Zoölogy 6
SECOND SEMESTER					
Monday		Agriculture 6 (First nine weeks) Agriculture 7 (Last eight weeks)	History 6	*Agriculture 4	*Botany 8
Tuesday		Agriculture 6 (First nine weeks) Agriculture 7 (Last eight weeks)	English 6	*Agriculture 13	*Agriculture 12
Wednesday		Agriculture 6 (First nine weeks) Agriculture 7 (Last eight weeks)	History 6	*Agriculture 13	*Botany 8
Thursday		Agriculture 6 (First nine weeks) Agriculture 7 (Last eight weeks)	English 6	*Agriculture 4	*Agriculture 13
Friday		*Agriculture 12	History 6		
Saturday		*Botany 8	English 6		

* Elective.

For hours of courses not scheduled see instructor

ENGINEERING COURSES—FRESHMAN YEAR
FIRST DIVISION.

FIRST SEMESTER					P. M.	
Day	8-9	9-10	10-11	11-12		
Monday		English 1	Chemistry 1	Military Sci. 1	Shop Work 1	
Tuesday	German 1	French 1	Military Sci. 9 (Sec. 1)	Mathematics 1	Shop Work 1	
Wednesday		English 1	Chemistry 1	Mathematics 1	Drawing 1	
Thursday	German 1	French 1	Mathematics 1	Mathematics 1	Shop Work 1	
Friday		English 1	Chemistry 1	Military Sci. 1	Drawing 1	
Saturday	German 1	French 1	Mathematics 1	Mathematics 1		

SECOND SEMESTER						
Monday	German 2	English 2	Chemistry 2	Military Sci. 2	Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)	Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Tuesday	Drawing 2	French 2 Drawing 2	Mathematics 3 (First ten weeks)	Military Sci. 10 (1st sec.)	Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)	Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Wednesday.....	German 2	English 2	Mathematics 3 (First ten weeks) Drawing 2 (Last seven weeks) Mathematics 3 (First ten weeks)	Military Sci. 10 (2d sec.) Drawing 2 (Last seven weeks) Mathematics 3 (First ten weeks)	Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)	Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Thursday.....	Drawing 2	French 2 Drawing 2	Chemistry 2	Military Sci. 2	Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)	Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Friday.....	German 2	English 2	Drawing 2 (Last seven weeks) Mathematics 3 (First ten weeks)	Drawing 2 (Last seven weeks) Mathematics 3 (First ten weeks)	Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)	Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Saturday.....	Drawing 2	French 2 Drawing 2				

Mathematics 2, First Semester, hours to be arranged.

ENGINEERING COURSES—FRESHMAN YEAR

SECOND DIVISION.

FIRST SEMESTER							
Day	8-9	9-10	10-11	11-12	P. M.		
Monday		Mathematics 1	Chemistry 1	Military Sci. 1	Drawing 1		
Tuesday	English 1	French 1 German 1	Mathematics 1	Military Sci. 9 (Sec. 1)	Drawing 1		
Wednesday			Chemistry 1	Military Sci. 9 (Sec. 2)	Drawing 1 Shop Work 1		
Thursday	English 1	French 1 German 1	Mathematics 1	Mathematics 1	Shop Work 1		
Friday			Chemistry 1	Military Sci. 1	Shop Work 1		
Saturday	English 1	French 1 German 1	Mathematics 1	Mathematics 1			

SECOND SEMESTER							
Monday		Military Sci. 10 (Sec. 1)	Chemistry 2	Military Sci. 2	Drawing 2 (First ten weeks) Mathematics 4 (Last seven weeks)		
Tuesday	English 2	French 2 German 2	Drawing 3 (Last seven weeks)	Mathematics 3 (First ten weeks) Drawing 3 (Last seven weeks)	Drawing 2 (First ten weeks) Mathematics 4 (Last seven weeks)		
Wednesday	Drawing 2 (First ten weeks)	Drawing 2 (First ten weeks)	Drawing 2 (First ten weeks)	Mathematics 3 (First ten weeks)	Mathematics 4 (Last seven weeks) Shop Work 2 (First ten weeks)		
Thursday	English 2	French 2 German 2	Mathematics 3 (First ten weeks) Drawing 3 (Last seven weeks)	Mathematics 3 (First ten weeks) Drawing 3 (Last seven weeks)	Mathematics 4 (Last seven weeks) Shop Work 2 (First ten weeks)		
Friday	Drawing 2 (First ten weeks)	Drawing 2 (First ten weeks)	Chemistry 2	Military Sci. 2	Mathematics 4 (Last seven weeks) Shop Work 2 (First ten weeks)		
Saturday	English 2	French 2 German 2	Mathematics 3 (First ten weeks) Drawing 3 (Last seven weeks)	Mathematics 3 (First ten weeks) Drawing 3 (Last seven weeks)			

Mathematics 2, First Semester, hours to be arranged.

CHEMICAL ENGINEERING COURSE—SOPHOMORE YEAR.

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	*Chemistry 5 (First five weeks) *Chemistry 10 (Last twelve weeks)	*Military Sci. 3	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
Tuesday.....	Mathematics 5		Physics 1 Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	German 3	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
Wednesday.....	Mathematics 5	Chemistry 5 Chemistry 10		Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
Thursday.....	Mathematics 5	Mathematics 5	Physics 1	German 3	Drawing 7
Friday.....	Mathematics 5		*Military Sci. 11	*Military Sci. 3	Drawing 7
Saturday.....	Mathematics 5	Mathematics 5	Physics 1	German 3	
SECOND SEMESTER					
Monday.....	Chemistry 6			*Military Sci. 4	Chemistry 11
Tuesday.....	Mathematics 6	Chemistry 6	Physics 2	German 4	
Wednesday.....	Mathematics 6	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
Thursday.....	Mathematics 6	Chemistry 6	Physics 2	German 4	
Friday.....	Mathematics 6	Mathematics 6	*Military Sci. 12	Military Sci. 4	Chemistry 11
Saturday.....	Mathematics 6	Mathematics 6	Physics 2	German 4	

* These periods are transposed from December 1 to March 31.

CHEMICAL ENGINEERING COURSE—JUNIOR YEAR

DAY	8-9	9-10	10-11	11-12	P. M.
Monday.....		Chemistry 19	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Military Sci. 5	Physics 6
Tuesday..	Chemistry 7	Chemistry 12	Chemistry 21	Chemistry 12	Physics 6
Wednesday	Chemistry 7	Chemistry 19	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)		Physics 6
Thursday	Chemistry 12	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Chemistry 12	Chemistry 12	Chemistry 12
Friday	Chemistry 12	Chemistry 12	Chemistry 12	Military Sci. 5	Chemistry 12
Saturday.....		Chemistry 21	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Military Sci. 13	

FIRST SEMESTER

DAY	8-9	9-10	10-11	11-12	P. M.
Monday.....	Geology 1	Geology 1	Mech. Eng. 5	Military Sci. 6	Chemistry 13
Tuesday	Chemistry 13	Chemistry 13	Chemistry 20	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 13
Wednesday.....	Chemistry 13	Mech. Eng. 5	Chemistry 13	Chemistry 13	Chemistry 8
Thursday.....		Mech. Eng. 5	Chemistry 20	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 8
Friday.....	Geology 1	Geology 1		Military Sci. 6	Chemistry 8
Saturday.....	Chemistry 12	Mech. Eng. 5		Chemistry 14 Chemistry 15 Chemistry 22 Military Sci. 14	

SECOND SEMESTER

CHEMICAL ENGINEERING COURSE—SENIOR YEAR

DAY	8-9	9-10	10-11	11-12	P. M.
Monday.....	Chemistry 23	Chemistry 23		Elect. Eng. 51	Chemistry 23
Tuesday.....	Chemistry 23	Chemistry 23	Chemistry 21	Mech. Eng. 7	Chemistry 23
Wednesday.....	Shop Work 15	Shop Work 15	Shop Work 15	Shop Work 15	Elect. Eng. 51
Thursday.....	Chemistry 23	Chemistry 23	Chemistry 23	Mech. Eng. 7	Chemistry 23
Friday.....	Elect. Eng. 51	Chemistry 23	Chemistry 23	Mech. Eng. 7	Chemistry 23
Saturday.....		Chemistry 21			

FIRST SEMESTER

DAY	8-9	9-10	10-11	11-12	P. M.
Monday.....	Chemistry 24	Chemistry 24	Chemistry 24	Elect. Eng. 52	Chemistry 24
Tuesday.....	Political Sci. 1		English 6	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 24
Wednesday.....	Chemistry 24	Chemistry 24	Chemistry 24	Elect. Eng. 52	Chemistry 24
Thursday.....	Political Sci. 1		English 6	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 24
Friday.....	Chemistry 24	Chemistry 24	Chemistry 24	Elect. Eng. 52	Chemistry 24
Saturday.....	Political Sci. 1		English 6	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 24

SECOND SEMESTER

Chem. 16. Hours to be arranged.

ELECTRICAL AND MECHANICAL ENGINEERING COURSES—SOPHOMORE YEAR

FIRST SEMESTER					
DAY	8-9	9-10	10-11	11-12	P. M.
Monday.....	Mech. Eng. 1		*	*Military Sci. 3	Chemistry 4 Shop Work 3
Tuesday.....	Mathematics 5		Physics 1	German 3	Chemistry 4 Shop Work 3
Wednesday.....	Mathematics 5	Mech. Eng. 1	Military Sci. 11		Drawing 5 (Div. 1)(1st 7 wks.) Chemistry 4
Thursday.....	Mathematics 5	Mathematics 5	Physics 1	German 3	Drawing 5 (Div. 1)(1st 7 wks.) Drawing 6 (Div. 2)
Friday.....	Mathematics 5		*Mech. Eng. 1	*Military Sci. 3.	Drawing 5 (Div. 1)(1st 7 wks.) Drawing 6 (Div. 2)
Saturday.....	Mathematics 5	Mathematics 5	Physics 1	German 3	

SECOND SEMESTER					
DAY	8-9	9-10	10-11	11-12	P. M.
Monday.....	Mech. Eng. 2 (First ten weeks) Mech. Eng. 3 (Last seven weeks)		*	*Military Sci. 4	Shop Work 4
Tuesday.....	Mathematics 6		Physics 2	German 4	Shop Work 4
Wednesday.....	Mathematics 6	Mech. Eng. 2 (First ten weeks) Mech. Eng. 3 (Last seven weeks)	Military Sci. 12		Drawing 8 Shop Work 4
Thursday.....	Mathematics 8		Physics 2 *Mech. Eng. 2 (First ten weeks) Mech. Eng. 3 (Last seven weeks)	German 4	Drawing 8
Friday.....	Mathematics 6	Mathematics 6		*Military Sci. 4	Drawing 8
Saturday.....	Mathematics 6	Mathematics 6	Physics 2	German 4	

* These periods are transposed from December 1 to March 31.

ELECTRICAL ENGINEERING COURSE—JUNIOR YEAR

FIRST SEMESTER					SECOND SEMESTER						
DAY	8-9	9-10	10-11	11-12	P. M.	DAY	8-9	9-10	10-11	11-12	P. M.
Monday	Elect. Eng. 3	Elect. Eng. 1	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Physics 3 Physics 4	Monday	Elect. Eng. 2	Elect. Eng. 4	Mech. Eng. 5 (First eight weeks) Mech. Eng. 8 (Last nine weeks)	Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Physics 5
Tuesday	Machine Design 1	Machine Design 1	Machine Design 1 Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Machine Design 2 Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Physics 3 Physics 4	Tuesday	Machine Design 2	Machine Design 2	Machine Design 2 Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Elect. Eng. 4 Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Physics 5
Wednesday	Elect. Eng. 1	Elect. Eng. 3	Machine Design 1 Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Elect. Eng. 3 Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Physics 3 Physics 4	Wednesday	Elect. Eng. 2	Mech. Eng. 5	Elect. Eng. 4	Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Physics 5
Thursday	Machine Design 1	Machine Design 1	Machine Design 1 Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Machine Design 1 Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Physics 3 Physics 4	Thursday	Elect. Eng. 2	Mech. Eng. 5	Elect. Eng. 4	Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Physics 5
Friday	Elect. Eng. 1	Elect. Eng. 7	Machine Design 1 Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Machine Design 1 Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Physics 3 Physics 4	Friday	Machine Design 2	Machine Design 2	Machine Design 2 Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Physics 5
Saturday	Elect. Eng. 3	Mech. Eng. 7	Machine Design 1 Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Machine Design 1 Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Physics 3 Physics 4	Saturday	Mech. Eng. 5	Elect. Eng. 4	Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Physics 5

ELECTRICAL ENGINEERING COURSE—SENIOR YEAR

FIRST SEMESTER				
Day	8-9	9-10	10-11	11-12
Monday	Mech. Eng. 10	Mech. Eng. 11	Elect. Eng. 5	Military Sci. 7
Tuesday	Mech. Eng. 10	Elect. Eng. 5	Elect. Eng. 20 Elect. Eng. 21 Elect. Eng. 22	Mech. Eng. 12
Wednesday	Mech. Eng. 10	Mech. Eng. 11	Elect. Eng. 20 Elect. Eng. 21 Elect. Eng. 22	Elect. Eng. 31
Thursday	Mech. Eng. 10	Mech. Eng. 11	Elect. Eng. 20 Elect. Eng. 21 Elect. Eng. 22	Mech. Eng. 12
Friday		Elect. Eng. 5		Mech. Eng. 12
Saturday		Elect. Eng. 5		Elect. Eng. 31

SECOND SEMESTER				
Day	8-9	9-10	10-11	11-12
Monday	Mech. Eng. 14 (First nine weeks) Mech. Eng. 15 (Last eight weeks)	Elect. Eng. 6 (First ten weeks) Elect. Eng. 7 (Last seven weeks)	Elect. Eng. 6 (First ten weeks) Elect. Eng. 7 (Last seven weeks)	Mech. Eng. 12
Tuesday	Political Sci. 1	Elect. Eng. 23 (First nine weeks) Elect. Eng. 24 (Last eight weeks)	Elect. Eng. 33	Elect. Eng. 32
Wednesday		Elect. Eng. 6 (First ten weeks) Elect. Eng. 7 (Last seven weeks)	Elect. Eng. 33	Mech. Eng. 13
Thursday	Political Sci. 1	Elect. Eng. 23 (First nine weeks) Elect. Eng. 24 (Last eight weeks)	Elect. Eng. 33	Mech. Eng. 13
Friday		Elect. Eng. 23 (First nine weeks) Elect. Eng. 24 (Last eight weeks)	Mech. Eng. 14 (First nine weeks) Mech. Eng. 15 (Last eight weeks)	Elect. Eng. 33
Saturday	Political Sci. 1		Elect. Eng. 33	Mech. Eng. 14 (First nine weeks) Mech. Eng. 15 (Last eight weeks)

MECHANICAL ENGINEERING COURSE—JUNIOR YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday.....		Elect. Eng. 41	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Military Sci. 5	Physics 3 Physics 4
Tuesday.....	Machine Design 1	Machine Design 1	Machine Design 1 Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Mech. Eng. 7	Physics 3 Physics 4
Wednesday.....	Elect. Eng. 41			Mech. Eng. 7	Physics 3 Physics 4
Thursday.....	Machine Design 1	Machine Design 1 Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Machine Design 1	Mech. Eng. 7	Shop Work 5
Friday.....	Elect. Eng. 41			Military Sci. 5	Shop Work 5
Saturday.....	Elect. Eng. 41	Mech. Eng. 7	Mech. Eng. 4 (First ten weeks) Mech. Eng. 6 (Last seven weeks)	Military Sci. 13	

SECOND SEMESTER

Monday.....		Elect. Eng. 42 (First eight weeks) Elect. Eng. 43 (Last nine weeks)	Mech. Eng. 5	Military Sci. 6	Physics 5
Tuesday.....	Shop Work 6 Elect. Eng. 43 (First eight weeks) Elect. Eng. 42 (Last nine weeks)	Shop Work 6	Shop Work 6 Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Physics 5
Wednesday.....	Elect. Eng. 42 (First eight weeks) Elect. Eng. 42 (Last nine weeks)	Mech. Eng. 5		Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Physics 5
Thursday.....	Shop Work 6	Mech. Eng. 5	Shop Work 6	Military Sci. 6	
Friday.....		Elect. Eng. 42 (First eight weeks) Elect. Eng. 43 (Last nine weeks)	Mech. Eng. 8 (First eight weeks) Mech. Eng. 9 (Last nine weeks)	Military Sci. 6	
Saturday....	Mech. Eng. 5			Military Sci. 14	

MECHANICAL ENGINEERING COURSE—SENIOR YEAR

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Mech. Eng. 10	Mech. Eng. 11	Mech. Eng. 16		Mech. Eng. 12
Tuesday.....	Mech. Eng. 10	Shop Work 7	Shop Work 7	Shop Work 7	Machine Design 3
Wednesday	Machine Design 3	Mech. Eng. 11	Mech. Eng. 10	Elect. Eng. 44 (First eight weeks) Elect. Eng. 45 (Last nine weeks)	Mech. Eng. 12
Thursday.....	Mech. Eng. 10	Mech. Eng. 11	Machine Design 3	Elect. Eng. 44 (First eight weeks) Elect. Eng. 45 (Last nine weeks)	Mech. Eng. 12
Friday.....	Machine Design 3	Machine Design 3	Machine Design 3	Mech. Eng. 16	Machine Design 3
Saturday	Shop Work 7	Shop Work 7	Shop Work 7	Elect. Eng. 44 (First eight weeks) Elect. Eng. 45 (Last nine weeks)	

FIRST SEMESTER

SECOND SEMESTER						
Monday.....	Mech. Eng. 14 (First nine weeks) Mech. Eng. 15 (Last eight weeks)	Shop Work 8	Shop Work 8	Shop Work 8	Mech. Eng. 17 (First nine weeks) Mech. Eng. 18 (Last eight weeks)	Thesis
Tuesday.....	Political Sci. 1	Machine Design 4	Machine Design 4	Machine Design 4	Mech. Eng. 14 (First nine weeks) Mech. Eng. 15 (Last eight weeks)	Thesis
Wednesday	Machine Design 4	Machine Design 4	Machine Design 4	Machine Design 4	Mech. Eng. 17 (First nine weeks) Mech. Eng. 18 (Last eight weeks)	Mech. Eng. 13
Thursday.....	Political Sci. 1	Machine Design 4	Machine Design 4	Machine Design 4	Mech. Eng. 14 (First nine weeks) Mech. Eng. 15 (Last eight weeks)	Mech. Eng. 13
Friday	Shop Work 8	Shop Work 8	Shop Work 8	Shop Work 8	Mech. Eng. 14 (First nine weeks) Mech. Eng. 15 (Last eight weeks)	Machine Design 4
Saturday.....	Political Sci. 1					

GENERAL COURSE—FRESHMAN YEAR

FIRST SEMESTER					P. M.	
Day	8-9	9-10	10-11	11-12		
Monday.....		Mathematics 1 French 1 German 1	Chemistry 1	Military Sci. 1	Drawing 1	
Tuesday.....	English 1	History 1 or History 3	Mathematics 1	Military Sci. 9	Drawing 1	
Wednesday.....		French 1 German 1	Chemistry 1	Mathematics 1	Shop Work 1	
Thursday.....	English 1	History 1 or History 3	Mathematics 1	Mathematics 1	History 1 or History 3	
Friday.....		French 1 German 1	Chemistry 1	Military Sci. 1	Shop Work 1	
Saturday.....	English 1		Mathematics 1	Mathematics 1		

SECOND SEMESTER					P. M.	
Day	8-9	9-10	10-11	11-12		
Monday.....	Military Sci. 10		* Chemistry 2	* Military Sci. 2	Drawing 16 (Last seven weeks) Mathematics 4 (Last seven weeks)	
Tuesday.....	English 2	French 2 German 2		Mathematics 3 (First ten weeks)	Drawing 16 (Last seven weeks) Mathematics 4 (Last seven weeks)	
Wednesday.....		History 2 or History 4		Mathematics 3 (First ten weeks)	Drawing 16 (Last seven weeks) Mathematics 4 (Last seven weeks)	
Thursday.....	English 2	French 2 German 2	Mathematics 3 (First ten weeks)	Mathematics 3 (First ten weeks)	History 2 or History 4	
Friday.....		History 2 or History 4	* Chemistry 2	* Military Sci. 2	Drawing 16 (Last seven weeks) Mathematics 4 (Last seven weeks)	
Saturday.....	English 2	French 2 German 2	Mathematics 3) (First ten weeks	Mathematics 8 (First ten weeks)	Mathematics 4 (Last seven weeks)	

Mathematics 2, First Semester, hours to be arranged.
* These periods are transposed from December 1 to March 31.

GENERAL COURSE—SOPHOMORE YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Zoölogy 6	Zoölogy 1	*Botany 3 Philosophy 1 Physics 1	*Military Sci. 3	Chemistry 4
Tuesday.....	Mathematics 5	Zoölogy 6 History 1 History 3	Botany 3 Philosophy 1 Physics 1	German 3	Chemistry 4
Wednesday.....	Mathematics 5	Zoölogy 1 History 3	Botany 3 Philosophy 1 Physics 1	Botany 3	Chemistry 4
Thursday.....	Mathematics 5	Mathematics 5 History 1, or History 3	*Military Sci. 11 Philosophy 1 Physics 1	German 3	History 1 History 3
Friday.....	Mathematics 5 Botany 3	Mathematics 5 Botany 3		*Military Sci. 3	Zoölogy 1 Zoölogy 6
Saturday.....				German 3	
SECOND SEMESTER					
Monday.....	Chemistry 6	Zoölogy 2	*Botany 4 English 6 Physics 2	*Military Sci. 4	Botany 4 Zoölogy 5
Tuesday.....	Mathematics 6	Political Sci. 1 History 2 History 4	Military Sci. 12 English 6 Physics 2	German 4	Botany 4 Zoölogy 5
Wednesday.....	Mathematics 6	Political Sci. 1 History 2 History 4	*Zoölogy 2 English 6 Physics 2	German 4	History 2 History 4
Thursday.....	Mathematics 6	Mathematics 6		*Military Sci. 4	Zoölogy 2
Friday.....	Mathematics 6	Mathematics 6		German 4	
Saturday.....	Mathematics 6	Political Sci. 1		German 4	

* These periods are transposed from December 1 to March 31.
Drawing 10 and 19, hours to be arranged.

GENERAL COURSE—JUNIOR YEAR

FIRST SEMESTER						SECOND SEMESTER					
DAY	8-9	9-10	10-11	11-12	P. M.	Monday	Chemistry 6 Chemistry 7 Zoölogy 8	French 4 Chemistry 6 Philosophy 3 Philosophy 5	Geology 2 History 6	Military Sci. 6	Spanish 2
Monday	Zoölogy 6 Chemistry 7 Zoölogy 8	French 3 Political Sci. 2 Zoölogy 6	English 3 History 5 Botany 5 Zoölogy 3	Military Sci. 5 Philosophy 2 Philosophy 4 English 3	Botany 5 Chemistry 4 Spanish 1 Zoölogy 3 Chemistry 4 Spanish 1 Botany 5 Zoölogy 3 Zoölogy 6	Tuesday	Chemistry 7 Zoölogy 8	Philosophy 3 Philosophy 5	Political Sci. 4 Political Sci. 5	English 4 Spanish 2	English 4 Spanish 2
Wednesday	Chemistry 7	French 3	History 5 Botany 5 Zoölogy 3	Philosophy 2 Philosophy 4	English 3	Wednesday	Chemistry 7	History 6	Geology 2	Spanish 2	Spanish 2
Thursday	Zoölogy 8	Political Sci. 2	History 5 Botany 5 Zoölogy 3	Military Sci. 5 Military Sci. 13 Philosophy 2 Philosophy 4	English 3	Thursday	Zoölogy 8	English 6	Political Sci. 4 Political Sci. 5	English 4 Geology 2	English 4 Geology 2
Friday		French 3	History 5			Friday		History 6	Military Sci. 6	English 4	English 4
Saturday	Zoölogy 8	Political Sci. 2				Saturday	Zoölogy 8	English 6			

For hours of courses not scheduled, see instructor.

GENERAL COURSE—SENIOR YEAR

FIRST SEMESTER						SECOND SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.	Day	8-9	9-10	10-11	11-12	P. M.
Monday.....					History 7 Spanish 1	Monday.....					
Tuesday.....	Zoölogy 8	Political Sci. 2	French 5 French 9 Philosophy 1	Political Sci. 3 Philosophy 2 Philosophy 4	Spanish 1	Tuesday.....		Mathematics 9 Philosophy 3 Philosophy 5	French 6 English 6 French 10	English 7 Political Sci. 4 Political Sci. 5	Spanish 2
Wednesday.....	German 5	Meteorology 1	French 5 French 9 German 9 Philosophy 1	Political Sci. 3	History 7 Spanish 1	Wednesday.....	German 6	Mathematics 9 Philosophy 3 Philosophy 5	French 6 German 10 English 6 French 10	English 7 Geology 2 Political Sci. 4 Political Sci. 5	Spanish 2
Thursday.....	Zoölogy 8 German 5	Political Sci. 2		Philosophy 2 Philosophy 4		Thursday.....					Geology 2
Friday.....		Meteorology 1	French 5	Political Sci. 3	History 7	Friday.....	German 6				English 7
Saturday.....	Zoölogy 8	Political Sci. 2	German 9 Philosophy 1	Philosophy 2 Philosophy 4		Saturday.....		Philosophy 3 Philosophy 5	English 6 German 10	Political Sci. 4 Political Sci. 5	

For hours of courses not scheduled, see instructor.

TWO YEAR COURSE IN AGRICULTURE.

This course was established by the state legislature in 1895, and provides an opportunity for those students to secure a training for their life work who do not have the time, money or preparation to take a four-year college course.

The course is especially arranged and suited for the young, bright boys of the farm, who expect to make a business of some line of agricultural or horticultural work. Although it is open to students who have had no previous training on the farm, the entrance of such is not encouraged because of their lack of practical experience. By independent work and close application, however, inexperienced students sometimes pass the course with credit.

Three new and important changes in the course have been made this year. The first is the shortening of the school year from thirty-five to thirty weeks. This change is made for the purpose of having the students complete their year's work about the last of April so as to be able to go home for the spring work on the farm or to accept salaried positions for the summer. It also permits of more than four months' time for those students who are dependent upon their own resources to earn money for the following year. The second change is the separation of the two and four-year classes all the way through the course. This separation has not heretofore been made in most of the agricultural and horticultural subjects, but with an increased teaching force in these two departments for the coming year, it is made complete. The making of the classes separate and distinct makes it possible to plan and give the work of the two-year course in a manner best

suited to the needs of its students. In short the course has been made just as practical as possible. The third change is the division of the year into two terms instead of three. The first term will be eighteen weeks in length and the second twelve.

The work of the first year is largely preparatory, being a study of the sciences underlying agriculture, together with some elementary agricultural and horticultural work. The second year contains optional studies so that it is possible for students to specialize in animal industry, dairying, forestry or greenhouse work. Ten hours per week on the average are spent in practical work on the farm, in the barn, greenhouses or shops.

ADMISSION.

The course is open to those who can pass a fair and reasonable examination in reading, spelling, writing, arithmetic, English grammar, geography and history of the United States. Applicants, unless over eighteen years of age, who do not bring high school or other satisfactory certificates to show their proficiency in these subjects, will be given an entrance examination on Tuesday afternoon and Wednesday morning of the opening week of school. Applicants who are over eighteen years of age will be admitted without examination.

OPENING.

The course for the year will open Wednesday, September 17, 1908, and close Wednesday, May 5, 1909. A Christmas vacation of two weeks and a spring vacation of one week will be given.

EXPENSES.

The expenses of the course will vary with the tastes and frugality of the students and the kind of accommodations which they secure. The total average expense for the year is not far from \$250. Many students by working for their

board or room rent, or by doing various kinds of work about the college or village, are able to go through the year with a cash outlay not exceeding \$150.

CERTIFICATES.

No degree is given at the end of the course, but a certificate of graduation is issued upon the completion of it or its equivalent.

DESCRIPTION OF STUDIES.

AGRONOMY.

Agriculture 21. Elementary Agriculture.

Text-book and recitations upon the elementary principles of Agriculture, including a study of the soil, the plant and the animal, and the relations of each to the other; also a brief study of the different breeds of livestock, their breeding and feeding. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

Agriculture 22. Farm Equipment and Farm Crops.

This course is similar to Agriculture 1, although less detailed. For Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

Agriculture 23. Soils and Soil Physics.

This course is similar to Agriculture 2, but involves less mathematics and physics. For Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

Agriculture 24. Manures and Fertilizers.

Text-book and recitations upon the constituents of farm manures and chemical fertilizers, care and application of manures, the mixture of fertilizers and the modifications required by different soils and crops. For Two Year Agricultural Students, Second Year.

Two exercises per week. 2nd S.

ANIMAL INDUSTRY.

Agriculture 25. Breeds of Live Stock.

Similar to Agriculture 8. For Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

Agriculture 26. Sheep Raising.

Lectures and recitations upon the breeds of sheep; their adaptability to this section; their care and management; fitting for the shows and feeding for market purposes; growing of hot house lambs. Also practical exercises in judging the various breeds. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

Agriculture 27. Feeds and Feeding.

Similar to Agriculture 10. For Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

Agriculture 28. Animal Breeding.

Similar to Agriculture 9. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

Agriculture 29. Veterinary.

Similar to Agriculture 11. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

Agriculture 30. Poultry.

Similar to Agriculture 12. Elective for Two Year Agricultural Students, Second Year.

Two exercises per week. 2nd S.

BOTANY.

ASSOC. PROF. BROOKS.

1. Elements of Botany.

A general view of the life processes and structure of plants, followed by the study in detail of a few type forms. Recitations

and laboratory work. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

2. Plant Diseases.

A study of the more important fungous diseases and their prevention. Lectures, recitations and laboratory work.

Open to students who have completed Course 1.

Three exercises per week. 2nd S.

CHEMISTRY.

PROF. MORSE.

9. Elementary Applications.

An elementary course, with special reference to the elements of plant food, composition of fertilizers, elements subject to exhaustion in soils, etc. For Two Year Agricultural Students, First Year.

Two exercises per week. 2nd S.

DAIRYING.

ASSOC. PROF. RASMUSSEN.

7. Milk and Milk Testing.

Lectures and recitations on the secretion, composition and properties of milk, the Babcock test and lactometer. Comparative study of different systems of creaming and different factors influencing the efficiency of the hand separator. For Two Year Agricultural Students, First Year.

Three exercises per week. 2nd S.

8. Butter Making.

This includes pasteurization, commercial starters, cream ripening, churning, marketing and scoring butter. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

9. Technology of Milk.

Same as Course 3. Elective for Two Year Agricultural Students, Second Year.

Two exercises per week. 2nd S.

DRAWING.

15. Two Year Agricultural Students, Second Year.

One exercise per week. 1st S.

ENGLISH.

8. Grammar and Elementary Composition.

For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

9. Grammar and Composition.

This is a continuation of Course 8. For Two Year Agricultural Students, First Year.

Open only to students who have completed Course 8.

Three exercises per week. 2nd S.

FORESTRY.

6. Farm Forestry.

Method of reproduction, seed collecting, thinning, determination of heights, contents and increment of forest trees. For Two Year Agricultural Students, First Year.

Two exercises per week. 2nd S.

7. Arboriculture and Forestry.

Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

HORTICULTURE.

11. Plant Growth and Greenhouse.

Combined lecture, demonstration and laboratory course in plant growth and greenhouse management. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

12. Fruit Growing.

This course embraces a study of commercial orcharding; each fruit being studied with reference to planting, cultivating, prun-

ing, fertilizing, picking, packing, storing and marketing. For Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

13. Vegetable Gardening.

A study of the commercial methods of vegetable growing. Special attention is given to the home garden. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

14. Home Decoration.

A study of ornamental trees, shrubs and flowers; their culture, proper arrangement and decorative value, with special reference to home surroundings. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

MATHEMATICS.

MR. EASTMAN.

10. Arithmetic and Bookkeeping.

For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

MILITARY SCIENCE AND TACTICS.

LIEUT. HUNT.

1. Military Drill.

For Two Year Agricultural Students, First Year.

Two exercises per week. 1st S.

2. Military Drill.

For Two Year Agricultural Students, First Year.

Two exercises per week. 2nd S.

3. Military Drill.

For Two Year Agricultural Students, Second Year.

Two exercises per week. 1st S.

4. Military Drill.

For Two Year Agricultural Students, Second Year.

Two exercises per week. 2nd S.

9. Infantry Drill Regulations.

Practical instruction and lectures. For Two Year Agricultural Students, First Year.

One exercise per week. 1st S.

10. Manual of Guard Duty and Small Arms Firing Regulations.

For Two Year Agricultural Students, First Year.

One exercise per week. 2nd S.

17. Lectures on Advance Guards, Outposts, etc.

For Two Year Agricultural Students, Second Year.

One exercise per week. 1st S.

18. Lectures on Advance Guards, Outposts, etc.

Continuation of Course 17. For Two Year Agricultural Students, Second Year.

One exercise per week. 2nd S.

PHYSICS.

ASST. PROF. ADAMS.

41. Elementary Physics.

For Two Year Agricultural Students, Second Year.

Four exercises per week. 1st S.

SHOP WORK.

9. Wood Work. Mr. Ingham.

For Two Year Agricultural Students, First Year.

Two exercises per week. 2nd S.

10. Iron Work. Mr. Brown.

For Two Year Agricultural Students, Second Year.

Two exercises per week. 2nd S.

ZOOLOGY.

13. Vertebrate Anatomy and Physiology.

The anatomy and physiology of the higher vertebrates based upon that of man and with special reference to domestic animals. Recitations and laboratory dissections and experiments. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

14. Elementary Entomology.

The structure, habits and classification of insects, with special consideration of injurious pests and means of controlling them. For Two Year Agricultural Students, First Year.

Three exercises per week. 2nd S.

TWO YEAR COURSE IN
AGRICULTURE.

HOURS OF STUDY.

COURSES OF STUDY AND SCHEDULE OF HOURS.

FIRST YEAR.

FIRST SEMESTER.

	Credit hours.
<i>Agriculture 21</i>	Elementary Agriculture 3
<i>Botany 1</i>	Elements of Botany..... 3
<i>English 8</i>	Grammar and Elementary Composition 3
<i>Horticulture 13</i>	Vegetable Gardening..... 3
<i>Mathematics 10</i>	Mathematics and Bookkeeping .. 3
<i>Military Science 1</i>	Drill 1
<i>Military Science 9</i>	Infantry Drill Regulations..... 1
<i>Zoölogy 13</i>	Vertebrate Anatomy and Physiology 3

SECOND SEMESTER.

<i>Botany 2</i>	Plant Diseases 3
<i>Chemistry 9</i>	Elementary Applications 2
<i>Dairying 7</i>	Milk and Milk Testing 3
<i>English 9</i>	Grammar and Composition..... 3
<i>Forestry 6</i>	Farm Forestry 2
<i>Military Science 2</i>	Drill 1
<i>Military Science 10</i>	Manual of Guard Duty..... 1
<i>Shop Work 9</i>	Wood Work 2
<i>Zoölogy 14</i>	Economic Entomology 4

SECOND YEAR.

FIRST SEMESTER.

<i>Agriculture 22</i>	Farm Equipment and Farm Crops 3
<i>Agriculture 25</i>	Breeds of Livestock 3
<i>*Agriculture 26</i>	Sheep Raising 3
<i>*Dairying 8</i>	Butter Making 3
<i>Drawing 15</i>	..... 1
<i>Horticulture 12</i>	Fruit Growing 3
<i>*Horticulture 11</i>	Plant Growth and Greenhouse... 3

*Elective. Elect any one or two.

Credit hours.

<i>Military Science</i> 3	Drill	1
<i>Military Science</i> 17	Advance Guards, Outposts, etc...	1
<i>Physics</i> 41	Elementary Physics	4

SECOND SEMESTER.

<i>Agriculture</i> 23	Soils and Soil Physics.....	3
<i>Agriculture</i> 24	Manures and Fertilizers.....	3
<i>Agriculture</i> 27	Feeds and Feeding.....	3
* <i>Agriculture</i> 28	Animal Breeding	3
* <i>Agriculture</i> 29	Veterinary Science	3
* <i>Agriculture</i> 30	Poultry	2
* <i>Dairying</i> 9	Technology of Milk.....	2
* <i>Forestry</i> 7	Arboriculture and Forestry.....	3
* <i>Horticulture</i> 14	Home Decoration	3
<i>Military Science</i> 4	Drill	1
<i>Military Science</i> 18	Advance Guards, Outposts, etc...	1
<i>Shop Work</i> 10	Iron Work	2

*Elective. Elect any two.

TWO YEAR COURSE IN AGRICULTURE—FIRST YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday	English 8	Agriculture 21	Mathematics 10	Military Sci. 1	Horticulture 11
Tuesday.....	English 8	Military Sci. 9	Horticulture 11	Botany 1	Zoölogy 13
Wednesday.....	English 8	Agriculture 21	Mathematics 10	Zoölogy 13	Botany 1
Thursday	English 8	Horticulture 11		Zoölogy 13	
Friday	English 8	Agriculture 21	Mathematics 10	Military Sci. 1	Botany 1
Saturday					
SECOND SEMESTER					
Monday.....	English 9	Chemistry 9	Forestry 6	Military Sci. 2	Zoölogy 14
Tuesday	Shop 9	Shop 9	Shop 9	Shop 9	Botany 2
Wednesday.....	English 9	Chemistry 9		Zoölogy 14	Forestry 6
Thursday	Dairying 7	Dairying 7	Dairying 7	Botany 2	Zoölogy 14
Friday	English 9	Military Sci. 10	Dairying 7	Military Sci. 2	Botany 2
Saturday,	Dairying 7	Dairying 7	Dairying 7	Zoölogy 14	

TWO YEAR COURSE IN AGRICULTURE—SECOND YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	1.30-4
Monday	*Agriculture 26 *Horticulture 13	Horticulture 12	*Dairying 8	Military Sci. 3	Agriculture 25
Tuesday	*Dairying 8	*Dairying 8	Agriculture 22	Physics 41	*Horticulture 13
Wednesday	*Horticulture 13	Horticulture 12	Agriculture 25	Physics 41	Agriculture 22
Thursday	*Agriculture 26	*Agriculture 26	Agriculture 22	Physics 41	Drawing 15
Friday	Military Sci. 17	*Agriculture 26	Agriculture 25	Military Sci. 3	Horticulture 12
Saturday	*Dairying 8	*Dairying 8	*Dairying 8	Physics 41	
SECOND SEMESTER					
Monday	Agriculture 24	*Agriculture 29	Agriculture 23	Military Sci. 4	*Forestry 7 *Agriculture 30
Tuesday	Agriculture 24	*Agriculture 23	Agriculture 23		*Dairying 9
Wednesday	Agriculture 24	*Horticulture 14 *Agriculture 29	Military Sci. 18	*Forestry 7	Agriculture 23
Thursday	Shop 10	Shop 10	Shop 10	Shop 10	Agriculture 27
Friday	Agriculture 27	*Horticulture 14 *Agriculture 28		Military Sci. 4	*Horticulture 14 *Agriculture 29
Saturday	Agriculture 27	*Dairying 9 *Agriculture 28	*Dairying 9	*Forestry 7 *Agriculture 30	

* Elective.

TEN WEEK COURSE IN DAIRYING OR DAIRY SCHOOL.

The thirteenth Annual Dairy School of the New Hampshire College will open Tuesday, January 7, and continue in session until Friday, March 14. Students should present themselves for registration at Thompson Hall the first day of the session. Lecture and laboratory work will begin the following day.

The object of this school is to furnish a broad and substantial foundation for those who would become successful creamery managers or dairy farmers. It offers a short route to a successful career that must otherwise require years of experience to attain. The subjects taught have a practical bearing on the every-day affairs connected with the various branches of the dairy industry.

DAIRY BUILDING AND EQUIPMENT.

The dairy building is a wooden structure of one and one-half stories with basement. It is divided into rooms for testing, separating and churning. There is also an engine room and an office for the dairy instructor.

All available space is occupied by the various forms of separators, milk testers, milk coolers, churns, butter-workers, etc. Dairy students are taught to use all the latest and best appliances obtainable. Steam power is supplied by the large boilers at the power house. In addition to the product of the college herd, milk and cream are received from about thirty farms in Durham and vicinity. Through this arrangement the college furnishes plenty of milk for practice work, and provides for a complete and practical training in creamery and dairy management. Representative animals of the Jersey, Guernsey, Ayrshire, Holstein and

Shorthorn breeds are owned by the college, and are used for acquainting the student with the different types of dairy cattle.

ADMISSION.

The school is open to women and to men in advanced years as well as to young men. No entrance examinations are required. To be most benefited by the school, students should have had some practical experience on a farm or in a creamery.

EXPENSES.

A tuition fee of five dollars is payable on registering at the beginning of the term; other expenses, including books, room and board for ten weeks, will amount to approximately sixty dollars.

NUMBER OF STUDENTS LIMITED.

Owing to the limited space for class work in the dairy building, the number of students must necessarily be limited to the men who first make application for admission.

CERTIFICATES.

Students completing the required work of the dairy school, and passing satisfactory examinations, will be given certificates.

THE WINTER COURSE IN AGRICULTURE.

This course was established at the college several years ago and has proved of great value to those who have taken advantage of the opportunities afforded by it.

There are a large number of young men located on the farms of our state who are so situated that it is impossible for them to be absent from their homes during the spring, summer and fall months, but who desire information and training in the principles of agriculture. Besides the young men and boys there are many mature men who are past the usual school age but are desirous of becoming familiar with the most recent agricultural studies and practices.

The winter course is designated to give such men an opportunity to study the results of the latest investigations in agriculture, and to learn how to make a practical application of the fundamental principles to the work on the farm.

Among the subjects which will be taught there are those of which every farmer should have definite knowledge, and in the application of which he should have thorough training. Practical work in the barn, greenhouses, forest and laboratories will go hand in hand with the work in the class room.

There is no longer any question concerning the value of scientific training for those who are engaged in farming. The rapid development of agriculture and the keen competition in all lines of production have made an education a necessity for the young man on the farm. It is the hope of the officers and instructors of the Winter Course in Agriculture that it will open an additional avenue in which the college may prove useful to the farmers of the state.

The course will open Tuesday, January 7, and continue until Friday, March 14. Applicants should register at Thompson Hall on the opening day. Regular exercises will begin on the day following.

ADMISSION.

No entrance examination is required for this course, but applicants should possess a good common school education and should be of mature years.

EXPENSES.

The expenses of the course may be estimated as follows:

Tuition fee	\$5.00
Room and board, 10 weeks at \$5.00	50.00
Books, stationery and incidentals	10.00
<hr/>	
Total	\$65.00

CERTIFICATES.

Students completing the course and passing satisfactory examinations will be given certificates stating the amount of work done.

TEN WEEK COURSES IN DAIRYING AND AGRICULTURE.

DESCRIPTION OF STUDIES.

Agriculture 41. Barn Work.

This will consist of ten two-hour periods in which the student will receive practice in mixing rations, grooming cattle, polishing horns, trimming sheep and in otherwise fitting and preparing animals for the show ring.

Agriculture 42. Breeds and Breeding.

Lectures and recitations upon the origin, history, distribution, breeding, characteristics, adaptability and standard of excellence of the pedigreed breeds of dairy cattle, with special reference to the selection of breeds and individual animals for the dairy herd.

This subject will be studied four hours per week for the first five weeks. The practical work will consist of judging and scoring representatives of the various breeds of dairy cattle and in tracing pedigrees of animals in the herd books of the different breeds.

Agriculture 43. Chemistry of Milk and Butter.

The subject is taken up in a course of 8 lectures, illustrated by experiments and specimens, and includes the properties and separation of the different constituents of milk, fat, casein, albumen, sugar, etc., the composition of butter and butter-fat and the properties and effects of preservatives.

Agriculture 44. Diseases of Cattle.

This course will consist of eight lectures and recitations upon the anatomy and physiology of the cow, with special reference to the digestive, reproductive and milk-producing organs. The common diseases, their causes and the methods of treatment will be discussed.

Agriculture 45. Feeds and Feeding.

This subject will be treated in twenty lectures and recitations upon the composition and digestibility of feeding stuffs; the preservation and preparation of coarse fodders; the making and feeding of ensilage, and the grinding, steaming and cooking of food. A careful study of the different feeds and grains upon the market and their value in a dairy-feeding ration will be made. Practice will also be given in computing and compounding rations for the dairy cow.

Agriculture 46. Manures and Fertilizers.

The course will consist of lectures and recitations upon the constituents of farm manures and chemical fertilizers; care of manures; different methods of application, and the modifications required by different soils and crops.

Agriculture 47. Poultry Raising.

This course consists of lectures and recitations upon the different classes and varieties of poultry; the location and building of poultry houses; the shipping of poultry and eggs and the methods of preventing disease. Practice will be given in scoring some of the leading varieties.

Agriculture 48. Sheep Raising.

In the study of sheep, particular attention is given to the subject of care and management, the adaptation of breeds to climate, the raising of early lambs, and the different grades, uses and value of wool. The possibilities of this industry in New Hampshire should merit a careful study of it.

Agriculture 49. Soils and Crops.

This subject will take up the origin, classification, distribution and the physical and chemical properties of soils; drainage and cultivation. The culture and use of the different varieties of grains, grasses and forage crops will be considered.

Botany 40. Plant Diseases and Spraying.

The more common and important fungous diseases and insect enemies will be studied by means of lectures and recitations. The time, methods, materials, cost and advantages of spraying will be discussed.

Dairying 40. Butter Making.

Lectures and recitations on the different systems of creaming milk and a comparison of the efficiency of different cream separators under varying conditions; cream ripening, churning, washing, marketing and scoring of butter.

Dairying 41. Dairy Bacteriology.

Lectures, recitations and demonstrations, covering the more important facts in the relation of bacteria to dairying, with instruction and practice in pasteurizing milk and cream for market or butter making and in preparing and using cultures in ripening cream.

Dairying 42. Dairy Laboratory.

The equipment in the dairy building is such that the laboratory work can be made applicable both to farm and factory conditions. The student will have an opportunity to study construction and efficiency, and operation of the various machines used in the handling of milk and making of butter.

The use of the Babcock test in apportioning the money value of milk is now regulated by state law, and the importance of the test in the successful management of the dairy herd has created a demand for more complete and practical training. The details of the test will be studied carefully, and the student will practise testing milk, cream, skim-milk and buttermilk until fully competent to perform the work for himself or for others. For Dairy Students.

Dairying 43. Dairy Laboratory.

The dairy laboratory will be open on Saturday mornings for students wishing to receive instruction and practice in the operation and care of cream separators, pasteurizers, and Babcock testers. This is only a brief course but is intended to give the student a working knowledge of the more common creamery and dairy devices. For Agricultural Students.

Dairying 44. Milk and Milk Testing.

This course will consist of a study of secretion, physical and chemical properties of milk; the production and preparation of sanitary certified and modified milk, the various methods of sampling and testing milk and cream, and the detection of adulterants and preservatives.

Forestry 40. Forestry.

This course is intended to give the student a knowledge of the various methods of forestry management in Europe and America. The text and lectures will cover the use of trees for shelter, shade and ornament, and their propagation; value of trees for timber; how to improve existing woodlands; influence of forests upon soils, crops and climate; establishment and management of plantations of forest trees.

Horticulture 40. Fruit and Vegetable Growing.

The culture, classification and identification, storing and marketing of our leading commercial fruits and vegetables are taken up for study. The location, care and management of orchards will also receive attention.

Horticulture 41. Greenhouse Management.

This course aims to familiarize the student with modern methods of greenhouse work. Soils, varieties, culture, marketing and enemies of greenhouse plants will be studied. Students will receive practice in propagating, potting, watering, ventilating, etc.

Mechanical Engineering 40. Boilers and Engines.

Lectures will be given on the construction, operation and care of boilers, motors, steam and gasoline engines. The lectures will be followed by practical demonstrations and practice in the management of the various motive powers. Instruction and practice will also be given in pipe cutting and fitting, and other work incidental to the management of a steam plant.

Zoölogy 40. Insects Affecting Animals.

This subject will be covered in four lectures on the horn-fly, warble-fly, cattle lice, and similar pests, with especial reference to their life histories and methods of combating them.

COURSES OF STUDY.

		Credit Hours.	No. of Weeks.
<i>Agriculture 41</i>	Barn Work	1	10
<i>Agriculture 42</i>	Breeds and Breeding..	2	5
<i>Agriculture 43</i>	Chemistry of Milk and Butter	1	4
<i>Agriculture 44</i>	Diseases of Cattle....	1	4
<i>Agriculture 45</i>	Feeds and Feeding....	2	5
<i>Agriculture 46</i>	Manures and Fertiliz- ers	1½	5
<i>Agriculture 47</i>	Poultry	2	10
<i>Agriculture 48</i>	Sheep Raising	1	5
<i>Agriculture 49</i>	Soils and Crops.....	2	5
<i>Botany 40</i>	Plant Diseases, etc...	2	5
<i>Dairying 40</i>	Butter Making	1½	5
<i>Dairying 41</i>	Dairy Bacteriology ...	1½	5
<i>Dairying 42</i>	Dairy Laboratory (Dairy Students) ..	5	10
<i>Dairying 43</i>	Dairy Laboratory (Ag- ricultural Students)	1	10
<i>Dairying 44</i>	Milk and Milk Testing	2	10
<i>Forestry 40</i>	Forestry	3	10
<i>Horticulture 40</i>	Fruit and Vegetable Growing	1½	5
<i>Horticulture 41</i>	Greenhouse Manage- ment	3	10
<i>Mech. Engineering 40</i>	Boilers and Engines...	1	10
<i>Zoölogy 40</i>	Insects Affecting Ani- mals	1½	2

AGRICULTURAL EXPERIMENT STATION.

This department of the college is provided for by the national government. The appropriations for the current year aggregate \$24,000.

The acts of Congress provide—

“That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping, as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaption and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective state and territories.”

COMMENCEMENT, 1907.

On Commencement Day, June 5, 1907, the following degrees were conferred:

BACHELORS OF SCIENCE.

AGRICULTURE.

Batchelor, L. D., West Upton, Mass.
Littlefield, R. A., Portsmouth.
Noyes, B. C., Lisbon.
Powers, J. G., Concord.

CHEMISTRY.

Dodge, C. A., New Boston.

ELECTRICAL ENGINEERING.

Broggini, A., Concord.
Randall, F. G., Portsmouth.
Woodward, A. J., Lancaster.

GENERAL COURSE.

Townsend, Ellice S., Lebanon.
Watson, Lucia W., Durham.
Dickey, H. H., Manchester.

MECHANICAL ENGINEERING.

Berry, P. R., Alton.
Ingham, H. E., Nashua.
Lane, F. D., Manchester.

MASTER OF SCIENCE.

Clark, J. D., Nashua.

CERTIFICATES.

Batchelder, D. R., Wilton.
Blood, A. E., East Sullivan.
Dean, A. L., Taunton, Mass.
Frink, S., Newington.
Hickey, W. P., Bow.
Kampe, F. H. C., East Alstead.
Parker, L. A., Keene.
Sanborn, L. E., Ashland.
Tucker, E. E., Durham.
Wright, C. S., Portsmouth.

PRIZE RECORD FOR 1906.

BAILEY PRIZE—\$10.

GIVEN BY DR. C. H. BAILEY OF THE CLASS OF '79, AND E. A.
BAILEY OF THE CLASS OF '85.
CARL AUSTIN DODGE, New Boston.

ERSKINE MASON MEMORIAL PRIZE.

FRANK WIGGIN RANDALL, Portsmouth.

SENIOR STANDING HIGHEST IN THE MILITARY DEPARTMENT.

ANDREW BROGGINI, Concord.

WINNERS OF INDIVIDUAL PRIZE DRILL.

GOLD MEDAL.

LEONARD S. MORRISON, '10, Concord.

SILVER MEDAL.

HARRY STORRS TOWNSEND, '09, Lebanon.

HONORABLE MENTION.

RAYMOND ADELBERT KNAPP, '10, Gloucester, Mass.

PRIZE SWORD—EXCELLENCE IN DRILL.

MERRITT CHASE HUSE, '08, CONCORD.

HONORABLE MENTION.

ARTHUR MILLIKEN BATCHELDER, '08, Suncook.

COLOR COMPANY—FALL TERM.

COMPANY B.

Valentine Smith Scholarships are held by—

W. W. KIRKPATRICK, '08.

WM. S. CAMPBELL, '09.

E. D. FRENCH, '10.

E. B. JENNINGS, '11.

ROSTER OF BATTALION.

FOR 1907-'08.

COMMANDANT.

FIRST LIEUT. WILLIAM E. HUNT, Eighth U. S. Infantry.

CADET OFFICERS.

MAJOR J. T. CROGHAN.

FIRST LIEUT. AND ADJT. J. W. TUCKER.

FIRST LIEUT. AND Q. M. W. W. EVANS.

SERGT. MAJ. C. B. WILKINS.

Q. M. SERGT. H. S. TOWNSEND.

COLOR SERGT. E. R. FELLOWS.

DRUM MAJOR. W. F. LANGELIER.

COMPANY A.

CAPT. A. M. BATCHELDER.

1ST LT. L. A. CARLISLE.

2ND LT. H. H. WILKINS.

COMPANY B.

CAPT. M. C. HUSE.

1ST LT. C. D. KENNEDY.

2ND LT. L. L. SMALLEY.

COMPANY C.

CAPT. H. D. WALKER.

1ST LT. M. M. COREY.

2ND LT. C. S. WENDELL.

FIRST SERGEANTS.

M. D. MERRILL.

H. E. WILDER.

L. A. PRATT.

SERGEANTS.

R. C. EMERY.

F. O. CHASE.

L. S. MORRISON.

E. M. STEVENS.

H. S. PIKE.

C. CHASE.

A. P. WOODS.

C. S. WRIGHT.

H. E. BATCHELDER.

F. E. MCKONE.

E. D. SANBORN.

A. E. BLAKE.

CORPORALS.

R. A. NEAL.

O. F. BRYANT.

C. E. LAWRENCE.

S. R. FISHER.

H. A. TROW.

H. C. WYMAN.

H. C. READ.

C. H. REYNOLDS.

J. M. LEONARD.

H. R. DAY.

W. D. KIDDER.

E. B. EDGERLY.

MUSICIANS.

H. T. LITTLEFIELD.

W. O. PARMENTER.

D. BOYNTON.

BAND.

2ND LT. J. P. TRICKEY.

SERGEANT F. CLOUGH.

SERGEANT S. F. HILL.

SERGEANT M. G. BUSS.

CORPORAL C. L. WOOD.

CORPORAL O. D. GOODWIN.

CORPORAL P. F. ELLSWORTH.

CORPORAL J. E. PARKER.

CATALOG

OF THE

NEW HAMPSHIRE COLLEGE

OF

Agriculture and the Mechanic Arts

DURHAM, NEW HAMPSHIRE

1908-1909

PRINTED BY TELEGRAPH PUBLISHING CO., NASHUA.
BOUND BY GEORGE G. NEAL, DOVER.

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CALENDAR.

1908

1909

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COLLEGE CALENDAR.

1908.

- Sept. 14-15. Entrance examinations begin Monday at 9 a. m.
 Sept. 16. Registration, Wednesday. First semester begins.
 Oct. 7. Stated meeting of Trustees.
 Dec. 18. College closes Friday night.

CHRISTMAS VACATION.

1909.

- Jan. 5. College opens Tuesday, at 8 a. m.
 Jan. 13. Stated meeting of Trustees.
 Feb. 1-5. Mid-year examinations.

WINTER VACATION.

- Feb. 10. Registration, Wednesday. Second semester begins.
 Apr. 14. Stated meeting of Trustees.
 Apr. College closes Wednesday night preceding Fast Day.

SPRING VACATION.

- Apr. College opens Tuesday following Fast Day, at 8 a. m.
 June 8. Senior examinations completed 4 p. m.
 June 9-14. Final examinations.
 June 13. Baccalaureate sermon, Sunday at 10.45 a. m.
 June 14. Prize Drill, 8 p. m., in the Armory.
 June 15. Class Day. Stated meeting of Trustees.
 June 16. Commencement Day. Senior promenade at 8 p. m.

SUMMER VACATION.

- Sept. 10-14. Examinations for admission begin Friday at 9 a. m.
 Sept. 15. Registration, Wednesday. First semester begins.
 Oct. 13. Stated meeting of Trustees.
 Dec. 17. College closes Friday night.

CHRISTMAS VACATION.

1910.

- Jan. 4. College opens Tuesday at 8 a. m.
 Jan. 12. Stated Meeting of Trustees.
 Jan. 31—Feb. 4. Mid-year examinations.

WINTER VACATION.

- Feb. 9. Registration, Wednesday. Second semester begins.

BOARD OF TRUSTEES.

HIS EXCELLENCY, Gov. CHARLES M. FLOYD, *ex officio*.

CHARLES W. STONE, A. M., East Andover, *President*.

Term expires Oct. 9, 1909.

PRES. WILLIAM D. GIBBS, Durham, *ex officio*.

HON. LUCIEN THOMPSON, Durham, *Secretary*.

Term expires June 14, 1910.

HON. JOHN G. TALLANT, Pembroke.

Term expires July 20, 1909.

HON. WARREN BROWN, Hampton Falls.

Term expires June 14, 1910.

HON. ROSECRANS W. PILLSBURY, Londonderry.

Term expires Oct. 7, 1909.

HON. RICHARD M. SCAMMON, Stratham.

Term expires Aug. 30, 1911.

WALTER DREW, Colebrook.

Term expires Aug. 30, 1911.

HON. NAHUM J. BACHELDER, M. S., A. M., East Andover.

Term expires Jan. 5, 1911.

GORDON WOODBURY, A. B., PH. D., LL. B., Bedford.

Term expires Dec. 2, 1908.

EDWARD H. WASON, B. S., Nashua, *Alumni Trustee*.

Term expires July 1, 1910.

GEORGE W. CURRIER, M. D., Nashua.

Term expires June 14, 1910.

WALTER M. PARKER, A. B., Manchester, *Treasurer*.

OFFICERS OF
INSTRUCTION AND ADMINISTRATION.

WILLIAM D. GIBBS, D. Sc., President of the College.

CHARLES H. PETTEE, A. M., C. E., *Dean and Professor of Mathematics*.

CLARENCE W. SCOTT, A. M., *Professor of History and Political Economy*.

FRED W. MORSE, M. S., *Professor of Organic Chemistry*.

CHARLES L. PARSONS, B. S., *Professor of Inorganic Chemistry.*
 FREDERICK W. TAYLOR, B. Sc. (Agr.), *Professor of Agronomy.*
 E. DWIGHT SANDERSON, B. S., B. S. Agr., *Professor of Zoology
 and Entomology and Director of the Experiment Station.*

ARTHUR F. NESBIT, S. B., A. M., *Professor of Physics.*

WILLIAM E. HUNT, B. S., *Captain Twenty-Second U. S. Infantry,
 Professor of Military Science and Tactics.*

RICHARD WHORISKEY, JR., A. B., *Professor of Modern Languages.*

FREDERICK W. PUTNAM, B. S., *Professor of Drawing and Design.*

CHARLES BROOKS, PH. D., *Professor of Botany.*

CHARLES E. HEWITT, B. S., M. M. E., *Professor of Electrical Engineering.*

BETHEL S. PICKETT, B. S., *Professor of Horticulture.*

ERNEST R. GROVES, A. B., B. D., *Professor of English and Philosophy.*

FORREST E. CARDULLO, M. E., *Professor of Mechanical Engineering.*

FRED RASMUSSEN, B. S. A., *Associate Professor of Dairying.*

WILLIAM H. PEW, B. Sc. (Agr.), *Associate Professor of Animal Husbandry.*

CHARLES JAMES, F. I. C., *Assistant Professor of Inorganic Chemistry.*

A. M. BUCK, M. E., *Assistant Professor of Electrical Engineering.*

FRANK R. BROWN, B. S., *Instructor in Machine Work.*

DAVID L. RANDALL, PH. D., *Instructor in Chemistry.*

RAY A. SPENCER, A. B., *Instructor in English and Modern Languages.*

HARRY E. INGHAM, B. S., *Instructor in Wood Work.*

THOMAS J. LATON, B. S., *Instructor in Drawing.*

WILLIAM M. BARROWS, B. S., S. M., *Instructor in Zoology.*

C. FLOYD JACKSON, B. S., M. A., *Instructor in Entomology.*

ISAAC M. LEWIS, A. B., A. M., *Instructor in Botany.*

JASPER F. EASTMAN, B. S., *Assistant in Agronomy.*

WILLIAM H. WICKS, M. S. (Agr.), *Assistant in Horticulture.*

JOHN C. McNUTT, B. S. (Agr.), *Assistant in Animal Husbandry,
 Herdsman.*

OSCAR W. STRAW, *Engineer and Curator of Buildings.*

DAVID LUMSDEN, *Foreman of Gardens and Greenhouse.*

GEORGE S. HAM, *Farm Foreman.*

MABEL E. TOWNSEND, A. B., *Registrar.*

MABEL HODGKINS, A. B., *Librarian.*

CHARLOTTE A. THOMPSON, *Assistant Librarian.*

NELLIE F. WHITEHEAD, *Purchasing Agent.*

LAVINIA BROWN, *Bookkeeper.*

MARCIA SANDERS, *Matron of Smith Hall.*

NEW HAMPSHIRE AGRICULTURAL EXPERIMENT STATION.

BOARD OF CONTROL.

HON. JOHN G. TALLANT, <i>Chairman,</i>	Pembroke
CHARLES W. STONE, A. M., <i>Secretary,</i>	East Andover
HON. WARREN BROWN,	Hampton Falls
HON. N. J. BACHELDER, A. M., M. S.,	East Andover
PRES. WILLIAM D. GIBBS, D. Sc., <i>ex officio,</i>	Durham

THE STATION STAFF.

E. DWIGHT SANDERSON, B. S., B. S. Agr., *Director and Entomologist.*
 FRED W. MORSE, M. S., *Vice-Director and Chemist.*
 FREDERICK W. TAYLOR, B. Sc. (Agr.), *Agriculturist.*
 CHARLES BROOKS, PH. D., *Botanist.*
 FRED RASMUSSEN, B. S. A., *Dairyman.*
 WILLIAM H. PEW, B. Sc. (Agr.), *Animal Husbandman.*
 BETHEL S. PICKETT, B. S., *Horticulturist.*
 BERT E. CURRY, M. S., *Associate Chemist.*
 JASPER F. EASTMAN, B. S., *Assistant Agriculturist.*
 C. FLOYD JACKSON, B. S., M. A., *Assistant Entomologist.*
 WILLIAM H. WICKS, M. S. (Agr.), *Assistant Horticulturist.*
 ISAAC M. LEWIS, A. B., A. M., *Assistant Botanist.*
 DAVID LUMSDEN, *Assistant in Floriculture.*
 JOHN C. McNUTT, B. S. (Agr.), *Herdsman.*
 NELLIE F. WHITEHEAD, *Purchasing Agent.*
 MABEL H. MEHAFFEY, *Stenographer.*
 LAVINIA BROWN, *Bookkeeper.*

FOUNDATION AND ENDOWMENT.

The New Hampshire College of Agriculture and the Mechanic Arts was incorporated by the state legislature in 1866, under the

provisions of the act of Congress, approved July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," the grant of land having been accepted by an act of legislature, approved July 9, 1863.

The act of 1862 provides that the income from the investment of the money realized from the sale of the lands shall be appropriated "to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The "Morrill Bill," which was approved August 30, 1890, and received the assent of the state by an act of legislature, approved February 13, 1891, provides an appropriation for the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of "the act of 1862."

The appropriation under the Morrill act is "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

Under an act of Congress approved March 2, 1887, which received legislative assent August 4, 1887, was established that department of the college known as the Agricultural Experiment Station, the purpose of which was "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

Benjamin Thompson, who died January 30, 1890, was a resident of Durham, and a farmer by profession. He had at heart the agricultural interests of his native state, and in the furtherance of those interests he bequeathed to it at his death his whole estate with a few minor reservations.

Mr. Thompson's final statement of the object of his bequest was as follows: "My object being mainly to promote the improvement of agriculture, though willing that the college to be established should also provide for the mechanic arts, it is my

will that the institution to be established by the state * * * shall be called and designated * * * The New Hampshire College of Agriculture and the Mechanic Arts, if that shall be the wish of the state; and that in addition to the instruction to be given therein, as provided by my said will, there shall be taught only such other arts or sciences as may be necessary to enable said state to fully avail itself of said donation of lands by the government in good faith, which two branches of instruction shall be the leading objects of said institution or college."

By the provisions of the will, the income from this source will not, however, become available until 1910. This endowment will amount at that time to nearly \$800,000, the annual income from which will be about \$32,000.

The state legislature accepted the Thompson bequest March 5, 1891, and on April 10, of the same year appropriated \$100,000 for buildings. Approximately \$50,000 was realized from the sale of property and from other sources. In 1893 an additional appropriation of \$35,000 was made by the state for completing and furnishing the buildings. Accordingly, in 1893 the college was moved from its first home at Hanover to its present location at Durham.

The general government of the college is vested in a board of thirteen trustees. The governor of the state and the president of the college are trustees, *ex officio*; the alumni of the college elect one trustee; and all other trustees are appointed by the governor of the state, with the advice and consent of the council.

The college is executing the trust reposed in it by giving instruction in the various courses described in this catalog, under the prescribed heads of "agriculture" and "the mechanic arts."

SITUATION.

Durham, the present site of the college, is on the Western Division of the Boston and Maine Railroad, 62 miles from Boston, and about midway between Rockingham Junction and the City of Dover, being five miles from the latter place.

SUNDAY SERVICES.

Although the only church in Durham is nominally Congregational, it is attended by citizens of all denominations, and sectarian lines are never drawn. It is conveniently situated, and offers ample opportunity for religious observance.

GENERAL INFORMATION.

New Hampshire College offers the following courses:

1. Agricultural courses.
 - a. Four year course.
 - b. Two year course.
 - c. Ten week course.
2. Mechanical Engineering Course.
3. Electrical Engineering Course.
4. Chemical Engineering Course.
5. General Course.

The college is a part of the public school system of the state. It stands in its agricultural, mechanical engineering, electrical engineering, technical chemistry, and general scientific courses, in the same relation to the high schools that the high schools stand to the grammar schools, and that these in turn stand to the elementary schools. In other words, it is a continuation of the grades of the public school system of the state, with special reference to the industrial pursuits, and, in the courses that are provided as described elsewhere in this catalog, it aims to give a practical training that shall fit the student to deal with the problems of life.

TUITION AND FEES.

Tuition is \$60 a year; fees, which include all charges commonly considered extras, except those for breakage and damage to college property, are \$20 a year. They are payable in advance in two equal instalments, one on the first day of each semester.

SCHOLARSHIPS.

Scholarships are awarded each semester at the discretion of the faculty to resident students of New Hampshire. They may be forfeited at any time for misconduct and will not be awarded except by special permission of the president, to students in the four year courses who have failed to secure an average grade of seventy or over in the previous semester. They are given for the purpose of aiding deserving students and will be withdrawn from those who use intoxicating liquors or tobacco.

Conant Scholarships.—There are twenty-five Conant scholarships, each paying tuition, \$60, fees, \$20, cash, \$20,—total, \$100. These are assigned under the following conditions:

They are to be given to young men taking an agricultural course.

Each town in Cheshire County is entitled to one scholarship, and Jaffrey is entitled to two.

They will be reserved for their respective towns until August 1 of each year. Those not taken by students from Cheshire County, and those in excess of the number of towns, will then be assigned to agricultural students from other parts of the state, and may be divided at the discretion of the president.

Senatorial Scholarships.—There are twenty-four senatorial scholarships,—one for each senatorial district. Each scholarship is to pay tuition, \$60. Senatorial scholarships not filled may be assigned to students from other localities at the discretion of the faculty; they are open to students in all courses.

Grange Scholarships.—Each subordinate and Pomona grange in New Hampshire has the privilege of appointing one student annually to a free scholarship in any of the four year or two year courses in the college. Each scholarship is to pay the tuition of \$60.

The method of appointment is entirely at the option of the grange; it may be by election, competitive examination, or otherwise. Holders of these scholarships need not be members of the grange.

Valentine Smith Scholarships.—Through the generosity of the late Mr. Hamilton Smith of Durham, the sum of \$10,000 has been given to the college to establish the Valentine Smith scholarships.

"The income thus accruing to the college shall be given to the graduate of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission to the college; *provided*,

"That the income shall be paid to the student to whom it is awarded, in eight semi-annual payments, at the time appointed for the payment of term bills; and

"That if the student receiving this scholarship shall at any time prove unworthy, in the judgment of the faculty, by reason of defective scholarship or character, he shall forfeit his claim to the student most deserving; and

"That if the student receiving this scholarship shall cease to be a member of the college, the income from this fund, for the unexpired term, shall be awarded to the student most deserving in character and scholarship."

By vote of the faculty, these scholarships will be forfeited by failure to obtain an average grade of 75 per cent. for any semester.

These scholarships yield \$400 annually or one hundred dollars to each holder.

Competitive examinations for this scholarship will be held at the college at the time of the entrance examinations in September, and at no other time. They are not restricted to residents of New Hampshire.

PRIZES.

Bailey Prize.—Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene, N. H., offer a prize of ten dollars for proficiency in chemistry.

Erskine Mason Memorial Prize.—Mrs. Erskine Mason of Stamford, Conn., has invested one hundred dollars as a memorial to her son, a member of the class of 1893, the income of which is to be given, for the present, to that member of the senior class who has made the greatest improvement during his course.

COLLEGE AID TO STUDENTS.

Students obtain considerable financial aid by janitorships, and work on the farm and in the greenhouse. They also find employment with the power and service department of the college and with the experiment station.

ESTIMATE OF FRESHMAN EXPENSES.

Tuition,	Free	\$60.00
Text-books,	\$10.00 to	25.00
Military uniform for new students,	16.00 to	16.00
Drawing instruments and materials,	10.00 to	25.00
Fees,	20.00 to	20.00
Room rent, including heat and light,	30.00 to	50.00
Board, \$3 to \$3.50 per week, for thirty-six weeks,	108.00 to	126.50
		<hr/>
Total,	\$194.00	\$322.50

Room rent is estimated on the supposition that two students occupy the same room or suite of rooms.

The college has no rooms for men students. Rooms may be obtained either furnished or unfurnished, in buildings under private control, and are for the most part provided with heating apparatus, electric lights and baths.

Women students, unless living at home, are required to room in Smith Hall, the woman's dormitory. Circulars giving terms, etc., may be obtained from the Registrar, New Hampshire College, Durham, New Hampshire.

REGISTRATION.

All undergraduate students who desire to attend the college during a given semester are required to register at the registrar's office before 4 p. m. of the first day of such semester. Every former student registered after the first day of any semester shall be charged for such registration a fine of one dollar for the first day and fifty cents additional for each succeeding day, to be remitted only by the president upon presentation of a substantial excuse for the delay.

ELECTION OF STUDIES.

Every student shall, on or before the Saturday before the last in each semester, notify in writing the secretary of the faculty of his elections for the semester following. Any student who, having made his elections, desires to change, shall make application to the faculty in writing with a statement in full of his reasons.

Any student who fails to fill out his elective slip on or before the date mentioned shall pay a fine of one dollar before he can be registered for the studies of the next semester, unless he has previously obtained from the secretary of the faculty a written excuse for delay.

No student shall be permitted to make changes in courses elected by him after one week from the time of his registration in each semester, except by vote of the faculty and the payment of one dollar.

ATTENDANCE AND EXCUSES.

All male students, unless members of the senior class or physically unfit, are required to attend military drill.

All students are required to attend chapel exercises. Students accumulating more than six unexcused absences from chapel during any semester shall be placed on probation.

Attendance upon class work is, in general, under the control of the heads of departments concerned. However, excuses for absence for one day or more, may be obtained of the dean in advance, and should be passed to the registrar by the student not later than twenty-four hours after the termination of such

absence. Excuses for absence for less than one day should be obtained of the instructors concerned. If excuses are for an indefinite time, the student must report to the registrar within twenty-four hours after his return to his studies, if he wishes to receive credit for his excuses.

In no case will such excuse relieve the student from class work.

Any head of a department may, without faculty action, exclude from examination any student who has been absent from twenty per cent. of the exercises of any class under his charge.

All classes shall begin at seven minutes after the hour scheduled, and close promptly at the end of the hour.

AMOUNT OF WORK.

No student shall be permitted to carry less than sixteen or more than twenty-two credit hours per week of classroom work or its equivalent, without the consent of the faculty.

REMOVAL OF DEFICIENCIES BY EXAMINATION.

Students conditioned on entrance examinations may have an opportunity to make up such deficiencies upon the three days preceding the beginning of each semester, and upon the last Saturday of each semester. A student who takes a deficiency examination upon an entrance subject at any other time must pay the college one dollar for each examination upon each subject.

Students who have any entrance condition outstanding at the beginning of the third year of residence at the college or more than one at the beginning of the second year shall not be allowed to register until such conditions have been removed.

Dates for re-examination in conditioned subjects are fixed at the discretion of the instructor. No requests for examinations will be granted on less than two weeks' notice except on the regular dates for examinations in entrance deficiencies.

BUILDINGS.

THOMPSON HALL.

Thompson Hall, the main college building has a length of 128 feet, exclusive of a *porte-cochère* 40 feet long, and a width of 93 feet in the widest part. It is built of granite and brick, and has three stories besides the basement.

The basement contains a blower-room, with apparatus for controlling the heating and ventilation of the building, a geological laboratory, a lavatory, and storage rooms.

One half of the first floor is occupied by the mechanical and free hand drawing and machine design rooms. The remainder of the first floor is used for offices, recitation rooms for mathematics and history, and a waiting room for women.

On the second floor are more offices, the zoological laboratories and recitation rooms for biology, mechanical engineering, English and modern languages.

On the third floor are the large hall used as an auditorium, two society rooms, and the bell-boy's room.

The building is lighted by gas and electricity, and provided with the most approved system of heating and ventilation.

LIBRARY BUILDING.

The library building, completed this year, was made possible by the generosity of Mr. Andrew Carnegie and by an act of consolidation whereby the college assumed the care of the Durham libraries and added to its building fund a sum of money which Mr. Hamilton Smith, late of Durham, provided for a public library building. It is a two-story building, with a frontage of 75 feet and a depth of 65 feet, not including the stack extension, which gives shelving room for sixty thousand volumes. On the main floor are the delivery, reference, reading, and children's rooms and the librarian's office. The second floor is used for seminar and lecture rooms. The stack room is fitted with a three-story stack, the second floor being on a level with the main floor of the library.

MORRILL HALL.

This building was erected in 1902 at a cost of about \$30,000. It is 110 feet long and 58 feet wide, comprising four stories, including the basement. The material is brick, laid in Flemish bond, with trimmings of the clear, almost white Suncook granite. The roof is of slate, and the construction throughout is designed to give the greatest possible security against fire. All the partition walls are of brick, and the steam for heating is taken from the boilers at the central station, near the mechanical building.

The basement contains an agricultural museum, a live stock judging room, a bulletin mailing room, and a soil storage room.

The first floor is occupied by the department of agriculture. It contains two class rooms—one for agronomy and one for ani-

mal industry—a soil physics laboratory with a preparation room attached, and offices. The agricultural experiment station library of over 1,000 volumes and the office of the director of the agricultural experiment station are also on this floor.

The second floor is occupied by the horticultural department. It contains one class-room, a pomological laboratory, a forestry laboratory, a herbarium room, a horticultural and agricultural reading-room and offices. The second floor is also provided with a refrigerator room, in which the fruits and vegetables used for laboratory work may be preserved.

CONANT HALL.

Conant Hall contains the laboratories and lecture-rooms for instruction in chemistry, physics and electrical engineering. It is a substantial brick building, 92 by 70 feet, and three stories high, including the basement. It is heated by steam brought from the shops, lighted by gas and electricity and provided with a system of thorough ventilation. Water, gas, high pressure steam, hydrogen, oxygen, vacuum and blast are supplied through pipes wherever needed, and the lecture rooms in addition have switches controlling both dynamo and battery currents, and arrangements for stereopticon illustration.

The basement contains a small workshop, the battery, photometer, photographic and comparator rooms, a clock room protected by double walls against changes in temperature, an acid room and a water and gas laboratory provided with the necessary fixtures and appliances.

The first floor, with the exception of one room, is occupied by the departments of physics and electrical engineering. It contains the mineralogical laboratory, which is provided with tile-covered desks and other facilities for blowpipe analysis; the junior physical laboratory; an apparatus room; the department libraries of physical and electrical books and periodicals; an electrical laboratory; and the physical lecture room.

The second floor is given up entirely to the chemical department. It contains storerooms, an organic laboratory, a qualitative laboratory, a private laboratory, a dark room for polariscopic and spectroscopic work, a lecture-room provided with facilities as before described, a quantitative laboratory, and a room for the delicate chemical balances and most important reference works.

The laboratories are fitted up with modern accessories and with special reference to the kind of work to be performed in each.

SHOPS.

These have been built in order to provide facilities for instruction in the working of wood and metals. The buildings are constructed on the "slow burning" principle, with thick walls, and heavy, continuous plank floors.

The main building is 42 by 106 feet, and two stories high, with a basement 31 by 42 feet. The basement and westerly rooms are used as an engine room and mechanical laboratories. On the first floor is the machine shop and on the second are the wood shop and stock and pattern room.

Joined to the main shop building and on a level with its basement is a one-story building, 40 by 100 feet, containing the boiler room, forge shop and foundry.

There are three boilers, aggregating 360 horse-power, which furnish steam to all the college buildings, wherever needed for heating or power. A brick chimney, 95 feet high, carries away the waste gases from the furnaces.

THE ARMORY.

The armory is a brick building with granite trimmings, 61 by 99 feet, with a headhouse, 31 by 46 feet. In the basement are two bathrooms, containing shower baths, one for the use of the faculty and visiting teams, and the other for students. Adjoining these are a locker room, a drying room, a toilet room and a room for gymnasium supplies. There is also a space reserved for a swimming pool, bowling alley, ball cage, etc., to be completed at some future time.

On the first floor are the military lecture room, three offices and the drill hall or gymnasium, with a running track six feet wide.

The equipment of the gymnasium includes chest weights, dumb bells, Indian clubs, wands, bucks, horses, horizontal and parallel bars, travelling rings, ladders, punching bags, etc.

On the second floor of the headhouse are the college club rooms.

NESMITH HALL.

Nesmith Hall, a two-story brick building, is occupied by the chemical, botanical and dairy departments of the agricultural experiment station. It contains the offices, libraries and laboratories of the chemical and botanical departments and the office of the dairy department. The recitation room of the botanical department is also in this building.

DAIRY.

The dairy building is a wooden structure of one and one-half stories, with basement. It contains six rooms equipped for manual training in milk testing, milk and cream pasteurizing, cream ripening, butter-making and the care and management of dairy machinery.

The first floor is used for receiving milk and for the separators. On this floor are also the office of the associate professor of dairying and the laboratory for milk testing. The basement contains the ripening vats, churns and refrigerators, together with the engine.

BARN.

The dairy barn is a large wooden structure, 45 by 100 feet, two stories high, and with a basement in which are box stalls, calf and sheep pens, a cold storage room, root cellar, feed, dressing and milk rooms. A story and a half ell, 35 by 100 feet, with basement, is attached to the main structure. The first floor of the ell is on a level with the basement of the main barn and contains stalls to accommodate 56 head of cattle. The basement of the ell contains pig pens, while the loft is used for the storage of feed, fertilizers and machinery. With the exception of the space occupied by a granary, a 120-ton silo and a 12-foot driveway, the upper floors of the main barn are used entirely for hay and forage, there being capacity for about 175 tons.

A new sheep barn built in the summer of 1907, houses about 80 sheep; the pens being sub-divided to accommodate those of different sizes. In this barn is storage room for twenty tons of hay and a considerable amount of grain.

A third barn is used by the agricultural department for the storage of hay, implements and wagons and for stabling the department horses.

A fourth barn, 25 by 60 feet, is used by the horticultural department for its horses and wagons and the storage of spraying machines and various garden implements.

GREENHOUSES.

The new range of greenhouses has been specially planned and built for carrying on modern and up-to-date work in greenhouse management and handicraft. There are seven houses, besides a propagating hallway. Connected with the glass structure is a workroom, 20 by 30 feet, which also answers as an office for the

florist, and is equipped with scales, seed-boxes and other accessories. The basement of the workroom, or potting house, is used for a boiler room and storeroom for potting soils. The whole is heated by steam and the houses are piped so that the temperature may be regulated for any kind of crop. One house is equipped for greenhouse management instruction and each student is given definite laboratory space and prescribed work. Two of the houses have ground beds and are adapted for forcing vegetables. The remaining houses have raised beds, excepting the center of the palm house, which has a ground bed.

These houses are lighted with electricity and offer unusual facilities for instruction and experimentation.

SMITH HALL.

Smith Hall, the woman's dormitory was made possible by the generosity of Mrs. Shirley Onderdonk, of Durham, who gave sixteen thousand dollars as a memorial to her mother, Mrs. Alice Hamilton Smith. The balance of the cost, \$10,000, was provided by the state.

It is a three and one-half story brick building, 86 feet long by 36 feet deep, built in "Old English" style, with granite trimmings and gable roof. The main entrance faces the south and opens into a large hall-way.

On the right of the entrance is the dining room and to the left a handsome reception room. In the rear of the reception room are the office and apartments of the matron; back of the dining room are the serving room, kitchen and pantry. In the basement are the boiler room, trunk room, drying room, laundry, and rooms for storage and fuel. The second and third floors are for student accommodations, each floor being equipped to accommodate sixteen students, and provided with toilet rooms and baths (shower and tub).

The building is heated by steam and lighted by electricity. The interior finish is of stained cypress, with hard wood floors.

LABORATORIES AND EQUIPMENT.

AGRONOMY.

This department is provided with a collection of dried specimens of the different forage crops; the more important varieties of corn, wheat and oats; and with a large number of lantern

slides, grass charts and other illustrative material. The soil physics laboratory is equipped with soil bins, a compacting machine, chemical and torsion balances, and various kinds of physical apparatus for the study of soils, including that for the determination of specific gravity and for the making of mechanical analyses.

The agricultural museum contains many of the latest models of the different makes of farm machinery, tools and appliances, including plows, cultivators, harrows, mowers, rakes, corn and grain binders, threshers, manure spreaders, different kinds of cattle ties and various makes of patent wire fences.

The college farm, with its 300 acres of land, has a variety of soils and soil conditions suited to the growth of nearly all the important farm crops, and thus offers excellent opportunities for practical work and demonstration in the department of agronomy.

ANIMAL HUSBANDRY.

For the various courses in animal husbandry an extended use is made of the live stock of the college farm. The dairy herd consists of representative animals of the following breeds: Ayrshires, Guernseys, Jerseys, Holsteins and Shorthorns. The college owns seven head of horses representing the draft type, and to become acquainted with the standard bred types the students are taken to various stock farms where these types may be inspected and judged.

For the study of the different breeds of sheep and swine the experiment station flocks of pure bred Southdowns, Dorset Horns, Shropshires, Hampshires, Lincolns and Merinos and herds of Yorkshires are used.

In the agricultural building a large room is fitted up for the judging of live stock; instruments for precise measurements are provided and score cards with a scale of points for each kind of animal are used.

The class-room is provided with a stereopticon lantern and a large collection of lantern slides is used to show the leading individuals of several breeds of live stock. The herd books of the several breeds are made use of in familiarizing the student with methods of tracing pedigrees and the practices of breeders' associations.

HORTICULTURE.

The facilities for instruction in the various lines of horticulture have vastly improved during the past few years.

The lecture room is fitted up with a stereopticon lantern and the collection of lantern slides is being continually enlarged. The pomological and vegetable gardening laboratories are of original design and offer every facility for modern work. A great many varieties of vegetables are grown in the experiment station trial ground, and these offer exceptional opportunities for identification and study in the laboratory for some time after field conditions have gone by. The orchards, gardens and grounds also offer opportunities for demonstrating the theories advocated in the lecture-room. Many varieties of different kinds of fruit are to be found in the orchards. Grapes, apples, cherries and small fruits are also grown at the agricultural experiment station. Propagation of fruits, shrubs and flowering plants is practised. A fine collection of Vilmorin charts is owned by the department.

COLLEGE FOREST.

A tract of 60 acres of old forest growth is owned by the college. It is located close at hand and offers ample opportunities for studying forestry. The country about Durham presents forestry conditions typical of New England, and the transplanting of trees, sowing of seeds and general questions of forestry management may here be studied in Nature's laboratory.

DAIRYING.

All available space in the dairy building is filled with various forms of cream separators, churns, testing apparatus and other dairy appliances. In addition to the product of the college herd, milk is received from about 25 farms in Durham and vicinity. Through this arrangement the college is able to furnish plenty of milk for practice work and to provide for a most thorough and practical training in dairy and creamery management.

MECHANICAL ENGINEERING.

A 40 horse-power engine furnishes power for the shops and electric lights for the college buildings. A large compound duplex pump receives water under a head of 15 feet through an eight-inch pipe from a reservoir one-half mile distant, and forces it through underground mains to the various hydrants and buildings or through nozzles for measurements during tests. It is fitted with indicator motions and other necessary equipment for complete duty tests. The pump with its long supply pipe, a 10-inch standpipe and a 6000-gallon tank, furnish apparatus for an extensive series of hydraulic experiments.

Among other apparatus is a 50,000-pound Olsen machine with the necessary tools and measuring instruments for tension compression and transverse tests; a 12 horse-power gas engine; a Westinghouse air-brake pump with locomotive and tender attachments; steam and gas engine indicators; a surface condenser; a Bristol pyromoter; Pitot tubes; differential gauges; cement testing machine with the necessary sieves and other apparatus for testing cement according to the recommendations of the committee for cement testing; and the usual supply of scales, gauges, thermometers and small apparatus. The three 66" return tubular boilers, with the 95 foot brick stack are used for boiler tests and flue gas analysis, by means of the Orsat apparatus, pyrometers and thermometers reading to 1,000 F. The boilers are fitted with forced draught apparatus, thus giving an opportunity for commercial tests with different grades of fuel, especially the cheaper grades. The ventilating fans and engines of the various buildings as well as the engines at the creamery, electrical laboratory and barn are available for testing. Opportunity is not only given for the student to test the engine or machine but to become familiar with its construction and operation.

In addition to the instruction given in the laboratory, excursions are made to various outside power plants, and when practicable, tests are made, thus enabling the student to become familiar with various types of engineering practice. Each year the proprietors of a nearby mill allow the class in valve gears to take exercises in valve setting on their 50 horse-power Corliss engine.

SHOPWORK.

The course in wood work consists of practice in carpentry, joinery and turning. Following this work is the course in pattern making, special attention being given to methods of design. The shop is supplied with benches and the necessary tools to accommodate twenty students at one time. Other equipment consists of a circular saw, board-planer, buzz-planer, jig-saw, speed-lathes, a large pattern maker's lathe with molding and boring attachments.

In the machine shop the student learns the principles of turning, facing, thread cutting, milling, shaping, scraping, filing and planing. In the advanced courses, parts of machinery are made to be used in the shops. The equipment is as follows: seven engine lathes, a 14-inch by 6-foot speed-lathe, built by students; a vertical drill, built by students; a 30-inch Flather

planer; a universal milling machine with gear-cutting and spiral attachments; shaper, power hack saw; tool grinder; 12 benches with vises, and a large number of small tools, including micrometer, calipers and gauges necessary for accurate work.

In the forge shop are 18 Sturtevant down-draft forges with anvils and necessary tools. The blast to the forges is furnished by a No. 4 blower, and the smoke carried away by a 60-inch exhauster. These are driven by a small steam engine. The student is taught the principles of forging, welding and tempering of iron and steel. Special attention is given to accuracy of dimensions as well as to shape and finish.

Foundry work is taken in connection with the course in pattern making, and the student molds and casts from the patterns he has constructed in the wood-shop. Castings are made in iron, brass and alloy, and tests are made on "test bars" of each. The foundry is supplied with a furnace, molding benches and bench tools.

PHYSICS.

The physical laboratory has a collection of the usual apparatus for laboratory work and lecture-room illustration, to which will be continually added pieces purchased or made in the college shop.

In the junior laboratory of physics there has been added apparatus for studying absorption phenomena and the comparison of spectra of films, liquids, metals, etc.; for measuring the angles of crystals and indices of refraction; for verifying the laws of refraction and total reflection of light; for determining the moment of inertia of various forms of specimens.

In electricity and magnetism the equipment includes instruments such as a magnetometer for studying the intensity of the earth's magnetism; a universal tangent galvanometer and an assortment of ammeters and voltmeters for measuring direct and alternating currents and voltages.

ELECTRICAL ENGINEERING.

The electrical engineering laboratories consist of two dynamo rooms, a transformer room, a photometer room and a storage battery room. In the main dynamo room there is a large distributing switchboard on which are mounted instruments, switches and plugging devices so arranged that it is possible to connect the laboratory rooms, also each lecture room, and convey thereto direct current and single phase, two phase and three phase alternating currents.

The general equipment of this department includes a magnetometer for studying the intensity of the earth's magnetism; a universal tangent galvanometer; a high grade four spool Thomson reflecting galvanometer; a D'Arsonval galvanometer; a Ryan electrometer for tracing pressure and current waves; a standard ballistic galvanometer; an Ayrton and Perry's variable standard of self-induction; as well as other types of instruments of various sizes for elementary work; also a complete Queen's photometer equipment for comparing incandescent and arc lamps and the distribution of light from the latter for open, enclosed and flaming arcs and when used with different forms of reflectors.

The equipment of the dynamo electric laboratory consists of 2 Edison bipolar 3 K. W. generators, an Edison bipolar 15 K. W. generator; a General Electric 4 pole 12 K. W. generator; a Crocker-Wheeler 3.5 K. W. generator, a Century 5 H. P. motor; a Westing house 5 H. P. motor with wound secondary; a Westinghouse 23 H. P. Junior type of engine; a Thompson-Houston 3 K. W. generator; two $\frac{1}{4}$ H. P. direct current motors; a low potential testing unit, consisting of a universal alternator belted to a direct current motor and capable of adjustment to be driven from either the direct or alternating current side; a $\frac{1}{2}$ K. W. special alternator arranged for single, two and three phase currents connected either star or mesh; a storage battery of 60 cells, of the Chloride type, with special switchboard; various sizes and types of transformers; standard makes of voltmeters and ammeters having wide ranges; wattmeters; power-factor meters; phase indicators; hysteresis testing apparatus of the Holden-Esterlin type; high tension transformers for testing commercial value of various insulating materials and insulators; and various other testing instruments.

In connection with this department, there is a work shop equipped with a 14" 8 foot bed, Flather engine lathe with a complete set of attachments; a good set of wood and metal working tools; also a small speed lathe for drilling and wood working purposes, a union combination saw with scroll, molding and boring attachments, a small hand-driven metal planer and sensitive drill. This shop and its equipment are of great value in thesis work and in making new apparatus.

CHEMISTRY.

The several chemical laboratories are modern in design, commodious and well equipped. Each is supplied with the latest forms of apparatus required for its particular work. Besides

all necessary glass and porcelain ware, this includes water baths, drying ovens, combustion, muffle and assay furnaces, platinum dishes and crucibles, polariscope, spectroscope, balances, lantern and other lecture appliances, etc.

ZOOLOGY.

The zoological laboratory is well supplied with aquaria, microscopes, dissecting tools, charts, reference books and collections. The latter include a representative display of the birds of New Hampshire, and a very large collection of the insects of the state arranged in glass-covered boxes.

BOTANY.

The botanical laboratory is supplied with a good herbarium, charts, microscopes and the other necessary appliances.

SURVEYING.

The surveying instruments are sufficient in number and of the most approved pattern.

DRAWING.

One-half of the entire first floor in Thompson Hall is devoted to the use of the drawing and machine design department. For free-hand model-drawing and for mathematical drawing there is a good supply of geometric models; and for free-hand industrial drawing the nucleus of a good collection exists, consisting of plaster casts of historic ornament, details of human form and antique sculpture, as well as vases and common objects. There is an excellent collection of working models and machines for machine drawing and various machines in other departments are available for this work.

There is a good working library connected with this department, including reference books in mechanical and free-hand drawing and elementary and machine design.

MUSEUM.

The museum had for a nucleus the collection made during the state geological survey. To this additions have been made from various sources. Specimens are being collected to illustrate the zoology of New Hampshire, and New Hampshire collectors and naturalists are invited to make the museum the permanent depository for their collections.

LIBRARY.

In accordance with an act of consolidation between the libraries of Durham and the college, the books of the Durham Public Library and the college are all shelved in the new building. This consolidation makes an especially good collection, the scientific books of the college supplementing well the more popular books of the town library. The consolidated libraries number about 23,000 bound volumes and 7,000 pamphlets.

In the reading room are to be found the leading American and foreign periodicals, local papers and Boston and New York daily papers.

In the reference room are shelved about 2,000 bound volumes, which give good opportunity for reference and research work. There is also provision for the future in the second story rooms, which can be used for department libraries when the reference room proves inadequate.

Aside from the main library, each department has its department library of the more technical books and those which are of special use in the laboratories and work-shops.

MILITARY DEPARTMENT.

This department is in charge of an officer of the United States regular army, detailed by the war department, as professor of military science and tactics. Military instruction, which is required by law, is both theoretical and practical, the latter largely from September to December 1 and from April 1 to June, the former having special reference to the duties of the line.

The organization is a battalion of three companies with a band, officered by cadets selected for character, soldierly bearing and efficiency. The federal government has furnished Krag-Jorgensen magazine rifles, model 1898, and equipment for 200 men. Attention is paid to rifle practice, the government supplying ample ammunition and target materials, and the college a good range, within four minutes' walk of the college buildings, with firing points at 200, 300 and 500 yards. The rolling country in the vicinity of the college furnishes the best opportunities for extended order drill and field exercises, the athletic field for close order drills and the new gymnasium or drill shed gives ample room for indoor work.

The cadets wear, whenever on military duty, and may at other times, provided the complete uniforms are worn, cadet gray uniforms with black trouser stripes, black braid on cuffs and col-

lars of blouses and blue caps, army regulation. The letters N. H. C. are embroidered in gold on each side of blouse collar. The cost of such a uniform does not exceed \$16 and the wearing of such does away with the necessity of purchasing a civilian suit for college use.

Service in this department is optional for members of the senior class; all other students, excepting those presenting surgeon's certificates of disability, are required to attend both drills and recitations. Seniors who elect drill and are appointed cadet officers have their college fees remitted.

Upon the graduation of each class, the names of such students as have shown special aptitude for military service are reported to the adjutant-general of the army and to the adjutant-general of the state. The names of the three most distinguished students in this department are inserted in the United States army register.

FOUR YEAR COURSES.

AGRICULTURAL COURSE.

This course is arranged especially for the general education and scientific training of students to fit them in various economic branches, such as agronomy, animal husbandry, dairying, biology, agricultural chemistry, entomology, forestry, horticulture, veterinary science, etc. Graduates are qualified to take positions as teachers and assistants in colleges and experiment stations, as farm superintendents, foremen, stock raisers, dairy farmers, creamery managers, dairymen, superintendents of estates, parks or cemeteries, fruit-growers, gardeners, florists, nurserymen, landscape gardeners, foresters, poultrymen, ranchmen, etc.

The aim is to give a broad general foundation of pure and applied science. Laboratory methods are used in connection with lecture and recitation work. Seminary courses are also given, especially for seniors and advanced students.

BIOLOGICAL DIVISION OF THE AGRICULTURAL COURSE.

The biological division of the agricultural course is for the benefit of those students who desire to make a special study of some phase of natural history. It leads to such positions as teachers of botany and zoology in high schools and colleges, entomologists for experiment stations, state inspectors of nursery grounds, etc. During the first two years the student pursues

the regular studies of the agricultural course, but in his junior year he begins to specialize in botany and zoology, a considerable proportion of his time during the rest of his course being given to these subjects. Students taking this course will elect, with the advice of the instructors in charge, six hours per week of biological work in the junior year and seven hours per week during the senior year, exclusive of thesis.

CHEMICAL DIVISION OF THE AGRICULTURAL COURSE.

The work of this division is especially intended to give a thorough grounding in the principles of chemistry as applied to agriculture and agricultural chemical analysis and to train the student thoroughly in all kinds of manipulation required of the chemist in experiment stations, large dairy establishments, fertilizer works, etc.

Instruction is given mainly by personal supervision in the laboratory, accompanied by lectures, themes, recitations; and, as in the course in technical chemistry, the studies are arranged to meet the needs of the individual. Students wishing to take this course will elect, with the advice of the instructors in charge, six hours per week of chemical work during the junior year, and seven hours per week during the senior year.

COURSE IN MECHANICAL ENGINEERING.

Mechanical engineering is concerned with the design, construction, care and operation of machinery.

The special studies are mathematical, including a large amount of drawing; technical, pertaining directly to the professional work of the engineer; and general.

The study of the scientific principles underlying the work of the engineer is accompanied throughout the course by actual practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, chemical and physical laboratories.

ELECTRICAL ENGINEERING COURSE.

The electrical engineering course is intended to meet the demands of a young man fitting himself for practical and professional engineering, in connection with the various applications of electricity.

By means of lectures, recitations and laboratory work, the subjects of the course are brought to the attention of the stu-

dent in such a manner as to emphasize not only the present needs of the practitioner and engineer, but to give him the groundwork that will enable him to grasp and understand the constantly increasing number of problems that require solution.

The instruction aims to impart a complete practical and theoretical knowledge of the best modern types of electrical machines and appliances and the methods of designing, building and operating them.

The rapid progress in recent years in applying electricity to commercial uses, renders it difficult, if not impossible, for one without a technical education to gain prominence in the work and be intrusted with its more responsible positions.

COURSE IN CHEMICAL ENGINEERING.

This course is intended to fit for the career of a professional chemist or chemical engineer, and to give a good foundation for original and independent chemical research.

Instruction is imparted by lectures, recitations and a large amount of carefully supervised laboratory work. The laboratory course is largely an individual one, and the work of each student is conducted with reference not only to the particular object he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a thorough training in German and French to enable him to read with ease the chemical literature; a thorough grounding in mathematics, necessary for advanced theoretical chemistry or chemical engineering; a somewhat limited amount of special engineering work, both mechanical and electrical; and a thorough undergraduate training in theoretical and applied chemistry. He is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference works and chemical periodicals which the library contains. Owing to the fact that the laboratories are becoming crowded the number of students taking this course is limited to six in each class. These six are chosen in the early part of the sophomore year from those who have applied. Fitness to become successful chemists will alone determine the choice made.

GENERAL COURSE.

The General Course is arranged for those who wish a broad general training based chiefly upon the study of science, modern languages and history. This course provides a liberal education with science as a leading element, and by means of the group

system of elective studies affords an opportunity for specialization.

COURSES FOR WOMEN.

Women attending the college may elect any course laid down in the curriculum, subject to the conditions prescribed for all students. They may omit manual labor on the farm and in the shop, and substitute other studies.

The general course, with its electives, is specially prepared for women, and is so planned that special courses may be arranged in literature, languages, history, philosophy, pedagogy, drawing, biology and manual training.

The courses in agriculture and chemistry afford opportunities for the study of the natural sciences, and the engineering courses offer exceptional advantages in mathematics and physics.

REQUIREMENTS FOR ADMISSION TO FOUR YEAR COURSES.

All candidates for admission to college must present satisfactory testimonials of good moral character.

Candidates for admission to the freshman class must offer studies amounting to a total of 14 units.

AGRICULTURAL COURSE.

Candidates for admission who intend to take the Agricultural Course must offer ten and one-half units from required subjects and three and one-half units from optional subjects, according to the following statement:

Required Group A (English)	3	units
B (American History or Ancient History)	1	unit
C....(Algebra and Plane Geometry)	2½	units
D.....(Physics and Biology)	2	units
E.....(French or German)	2	units
		<hr/>
		10½ units
(Optional)	3½	units
		<hr/>
Total	14	units

ENGINEERING COURSES.

Candidates for admission who intend to take the Engineering Courses must offer ten units from required subjects and four units from optional subjects, according to the following statement. Beginning with Sept. 1910, Plane Trigonometry will be added to the required subjects.

Required Group A (English)	3	units
B (American History or Ancient History)	1	unit
C (Algebra, Plane and Solid Geometry)	3	units
D..... (Physics)	1	unit
E..... (French or German)	2	units
	<hr/>	
	10	units
(Optional)	4	units
	<hr/>	
Total	14	units

GENERAL COURSE.

Candidates for admission who intend to take the General Course must offer ten and one-half units from required subjects and three and one-half units from optional subjects, according to the following statement:

Required Group A (English)	3	units
B (American History and Ancient History)	2	units
C.... (Algebra and Plane Geometry)	2½	units
D..... (Physics)	1	unit
E..... (French or German)	2	units
	<hr/>	
	10½	units
(Optional)	3½	units
	<hr/>	
Total	14	units

GROUP A, ENGLISH.

The New England College Entrance Requirements in reading and study or any course of equivalent value—four periods per week for four years. Emphasis should be placed upon the development of a clear, correct style on the part of the candidate rather than upon the critical analysis of literature.

FOR 1909-1911.

Required for Study and Practice.

Shakespeare: Macbeth. Milton: Lycidas, Comus, L'Allegro, and Il Penseroso. Burke: Speech on Conciliation with America; or Washington: Farewell Address, and Webster: First Bunker Hill Oration. Macaulay: Life of Johnson; or Carlyle: Essay on Burns.

Required for Reading.

Group 1 (two books to be selected). Shakespeare: As You Like It, Henry V, Julius Cæsar, The Merchant of Venice, Twelfth Night.

Group 2 (one book to be selected). Bacon: Essays. Bunyan: The Pilgrim's Progress, Part I. The Sir Roger de Coverley Papers in "The Spectator." Franklin: Autobiography.

Group 3 (one book to be selected). Chaucer: Prologue. Spenser: Selections from the Faerie Queen. Pope: The Rape of the Lock. Goldsmith: The Deserted Village. Palgrave: Golden Treasury (First Series), Books II and III, with especial attention to Dryden, Collins, Gray, Cowper, and Burns.

Group 4 (two books to be selected). Goldsmith: The Vicar of Wakefield. Scott: Ivanhoe, Quentin Durward. Hawthorne: The House of the Seven Gables. Thackeray: Henry Esmond. Gaskell: Cranford. Dickens: A Tale of Two Cities. George Eliot: Silas Marner. Blackmore: Lorna Doone.

Group 5 (two books to be selected). Irving: Sketch Book. Lamb: Essays of Elia. De Quincey: Joan of Arc and The English Mail-Coach. Carlyle: Heroes and Hero-Worship. Emerson: Essays (selected). Ruskin: Sesame and Lilies.

Group 6 (two books to be selected). Coleridge: The Ancient Mariner. Scott: The Lady of the Lake. Byron: Mazeppa and the Prisoner of Chillon. Palgrave: Golden Treasury (First Series), Book VI, with special attention to Wordsworth, Keats, and Shelley. Macaulay: Lays of Ancient Rome. Poe: Poems. Lowell: The Vision of Sir Launfal. Arnold: Sohrab and Rustum. Longfellow: The Courtship of Miles Standish. Tennyson: Gareth and Lynette, Lancelot and Elaine, and The Passing of Arthur. Browning: Cavalier Tunes, The Lost Leader, How They Brought the Good News from Ghent to Aix, Evelyn Hope, Home Thoughts from Abroad, Home Thoughts from the Sea, Incident of the French Camp, The Boy and the Angel, One Word More, Hervé Riel, Pheidippides.

GROUP B, HISTORY.

The work offered for each unit in History must consist of at least five exercises per week during one year of the high school course, except that in the case of American History four exercises per week will be accepted. For details of preparatory work in History, reference is made to "A History Syllabus for Secondary Schools, by the New England History Teachers' Association." Boston, D. C. Heath & Co., 1904.

American History and Civics.

The History requirements are covered by Channing's Students' History, Montgomery's Students' History or by Hart's Essentials, with the collateral work. The work in Civics must include at least a knowledge of the Constitution of the United States.

—1 unit.

Ancient History.

Wolfson's Essentials or an equivalent, with the collateral work, or, the History of Greece and the History of Rome as given in works like Myers' History of Greece, Morey's Outlines of Greek History, Allen's Roman People, Myers' Rome and Morey's Outlines of Roman History. The requirements are limited to Grecian History and Roman History to A. D. 476.

—1 unit.

English History.

The amount of English History required is represented by Gardiner's Students' History, by Larned's or Montgomery's History, or by Walker's Essentials, with the collateral work.

—1 unit.

Mediaeval and Modern History.

Harding's Essentials of Mediæval and Modern History with the collateral work, or Myers' Mediæval and Modern History, or an equivalent.

—1 unit.

GROUP C, MATHEMATICS.**Algebra.**

Through quadratic equations, including radicals and fractional and negative exponents, binomial theorem and progressions,—five periods per week for one and one-half years.

—1½ units.

Plane Geometry.

The equivalent of Wells' presentation.

—1 unit.

Solid Geometry.

The equivalent of Wells' presentation.

— $\frac{1}{2}$ unit.

Plane Trigonometry.

The equivalent of Wells' presentation.

— $\frac{1}{2}$ unit.

GROUP D, SCIENCE.

Accompanying the certificates for each of the sciences the student **MUST** present at entrance a note-book containing records and drawings of his or her observations and experiments in the laboratory, which must bear the certificate of the teacher in charge that the work was done personally in the laboratory.

Physics.

The preparation required for entrance in Physics shall be an equivalent of five exercises a week for one year, of which at least two are devoted to laboratory work.

—1 unit.

Biology.

Students in the Agricultural Course must present either.

A. Zoology.

Kellogg's Elementary Zoology, Linville and Kelly's Text book in General Zoology. Jordan, Kellogg and Heath's Animals, Needham's Lessons in Zoology, Coulton's Zoology, or an approved equivalent, occupying at least four periods per week for a half year, of which at least one is devoted to laboratory work.

— $\frac{1}{2}$ unit.

and Botany.

Bergen's Elements of Botany, or an approved equivalent, occupying at least four periods per week for a half year, of which at least one is devoted to laboratory work.

— $\frac{1}{2}$ unit.

or

B. Botany.

Coulter's Text Book of Botany, Bergen's Foundations of Botany, or an approved equivalent, occupying at least four periods per week for one year, of which at least one is devoted to laboratory work.

—1 unit.

Geology.

Leconte's Compend or an approved equivalent.

— $\frac{1}{2}$ unit.

Chemistry.

Elementary Inorganic Chemistry equivalent to the work covered in Remsen's Briefer Course, Storer & Lindsay's Manual, Witham's Elements or Newell's Descriptive Chemistry, accompanied in each instance with laboratory practice.

—1 unit.

GROUP E, MODERN LANGUAGES.

French.

Two years are required for preparation in French. Work of the first year should include (1) careful drill in pronunciation, (2) drill upon the rudiments of grammar, (3) abundant translation of simple English prose into idiomatic French, (4) reading of from 100 to 175 pages of French prose, (5) writing French from dictation. Work of the second year should include (1) the reading of from 250 to 400 pages of easy modern prose, (2) constant practice in translating from English into French variations of the text read, (3) frequent paraphrases of the text read, (4) dictation.

—2 units.

German.

Two years are required for preparation in German. Work of the first year should include (1) careful drill in pronunciation, (2) drill upon the rudiments of grammar, such as the inflection of the articles, the common nouns, adjectives, pronouns and strong and weak verbs, upon the uses of the prepositions, the modal auxiliaries and the rules of syntax and word order, (3) writing from dictation, (4) the reading of from 75 to 100 pages of prose, (5) translation from English into German. Work of

the second year should include (1) the reading of from 150 to 200 pages of prose, (2) constant practice in translating from English into French variations of the text read, (3) dictation, (4) continued drill upon the rudiments of grammar, (5) frequent paraphrases of the text read.

—2 units.

GROUP F, ANCIENT LANGUAGES.

Students entering from approved schools may receive credit in their certificates for the following work in Latin or Greek.

Latin.

Grammar and four books of Cæsar. Two year's work.

—2 units.

Vergil, six books.

Cicero, six orations.

—2 units.

Greek.

Books I and II of Xenophon's Anabasis, Books III and IV of the Anabasis or their equivalent in other Attic prose, and 1,500 lines of Homer.

—2 units.

CERTIFICATES.

In place of examinations, certificates will be received from approved preparatory schools, including all that have been approved by the superintendent of public instruction in New Hampshire. Approval of a school will be withdrawn whenever it appears that the work of the school does not reach the standard required by the college. No certificate will be accepted from a private tutor or instructor.

Certificates should meet the requirements IN FULL; in case of exceptions the candidate will be examined on any requirement not covered by the certificate. If the certificate makes ANY exception in the case of a student who has not regularly graduated from an approved school, the certificate will not be accepted, and the student will be examined on all the requirements.

Certificates will be accepted for that work only which has been done in the certifying school, or which is necessarily involved in the work done there; work done in the grammar school must not be certified unless reviewed in the high school.

Certificates must be made out on a blank furnished by the college, and should be mailed to the dean at the close of the SCHOOL year.

COMPLETE CERTIFICATES.

THE SIGNATURE OF THE PRINCIPAL IS TO BE AFFIXED TO THE GENERAL CERTIFICATE, AND TO THAT OF EACH DEPARTMENT IN WHICH THE WORK OF THE CANDIDATE IS CERTIFIED.

PARTIAL CERTIFICATES.

In case the work of a graduate has not been up to certificate grade in one or more subjects, the principal is requested to sign the general certificate, crossing out the words "and that in my judgment he is prepared to enter at once upon the work of the freshman year." He is also requested to fill out the group certificates in full *except signature*, the signature being attached only to such as indicate certificate grade.

Divided certificates from two or more schools will be accepted when the preparatory work has been done in more than one institution.

Certificate forms will be furnished upon application.

Candidates for advanced standing are also examined in the studies that have been pursued by the class which they propose to enter.

Examinations will be given, in the subjects presented for admission, beginning Friday of the week preceding the opening of the college year. Candidates will present themselves with their credentials on the first day of the examinations. See Calendar.

REQUIREMENTS FOR GRADUATION FROM FOUR YEAR COURSES.

Those who complete a four year course or its equivalent will be recommended for the degree of Bachelor of Science. No equivalent course will be accepted which does not comply with all the following requirements:

1. The completion of all work common to the four year courses.
2. The completion of one hundred fifty-four credit hours.
3. The completion of all but ten or less credit hours in some one of the regular four year courses.

4. Approval by the faculty not earlier than June 1 preceding the year of graduation.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding commencement; and each member of the class may receive a statement of his standing at the office of the registrar at 2 p. m. on the next day, Wednesday.

All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

THESIS.

A thesis upon some subject connected with the work of the course taken is required of every candidate for a degree. The subject together with a written approval of it by the head of the department within which it lies must be submitted to the president before the 15th day of December preceding graduation. The thesis shall be submitted to the head of the department concerned not later than the second Tuesday preceding commencement day. The thesis must be completed in typewritten and bound form and be in the hands of the department concerned before the Tuesday preceding commencement day. The thesis shall be typewritten or printed upon standard thesis paper eight and one-half by eleven inches, medium weight, neatly bound in black cloth and gilt-lettered on first cover with title, name of author, degree sought and year of graduation. This bound copy shall be filed and left with the college librarian.

FOUR YEAR COURSES.

DESCRIPTION OF STUDIES.

AGRONOMY.

PROF. TAYLOR, MR. EASTMAN.

1. Farm Equipment and Farm Crops.

Lectures and recitations upon the selection, planning and equipment of farms; fencing; drainage; farm wells; harvesting and tillage implements; silos and stable construction, etc. History, use and methods of culture of our various farm crops. Practical exercises in leveling and laying out of drains and in the preparation of farm and building plans. Judging and scoring the different varieties of grains and grasses. For Agricultural Juniors.

Three exercises per week. 1st S.

2. Soils and Soil Physics.

Lectures and recitations upon the formation, kinds and physical properties of soils; the movements and conservation of soil moisture; the relation of heat and air to soil; the nature and physical effects of tillage and fertilizers; laboratory work and experimentation with soils to show the physical effects of different conditions and texture. For Agricultural Juniors.

Three exercises per week. 2nd S.

3. Soil Management and Fertility.

An advanced course in soils for those who have shown a special aptitude in the preceding course. The processes of soil formation, the physics and chemistry of soils, soil classification and mapping and the principles of fertility will be discussed. The lecture work will be supplemented by laboratory and field experimentation. Elective for Agricultural Seniors.

Three exercises per week. 1st S.

4. Manures and Fertilizers. Prof. Morse.

A course of lectures, themes and abstracts on the subject of plant food and its sources. Elective for Agricultural Seniors.

Two exercises per week. 2nd S.

5. Agricultural Seminary. Prof. Taylor.

This course consists of library and reference work and a study of current agricultural literature. Each student will prepare during the term a certain number of abstracts, reports of papers upon topics relating to agriculture. For Agricultural Seniors.

Two exercises per week. 1st S.

6. Agricultural History and Economics. Prof. Taylor.

Lectures and recitations upon the history of agriculture from early Egyptian to modern American; present agricultural methods and systems in various countries; the principles of economics as applied to the organization, equipment and operation of the farm; tenancy and land ownership; practical problems in farm management. For Agricultural Seniors. First nine weeks.

Four exercises per week. 2nd S.

7. Farm Mechanics. Prof. Taylor.

Lectures and recitations upon the principles of construction of farm buildings; barns and silos; construction and maintenance of country roads; principles of draft; farm motors and machinery.

Practical work in testing and comparisons of various makes and kinds of farm machinery. For Agricultural Seniors. Last eight weeks.

Four exercises per week. 2nd S.

ANIMAL HUSBANDRY.

ASSOC. PROF. PEW, MR. MCNUTT.

1. Breeds of Livestock.

Lectures and recitations upon the origin, history, development, characteristics and adaptability of the different breeds of cattle, sheep, horses and swine. In the study of beef cattle, market conditions and requirements are considered. In the study of dairy cattle, milk and butter production are considered. In the study of sheep, mutton and wool requirements are considered, also the raising of early lambs.

In the study of horses, besides the origin, history and development of the breeds, market classifications are considered. In the study of swine, the influence of various feeds and of different methods of management as affecting types is considered. One afternoon each week is used for judging the different breeds. For Agricultural Sophomores.

Three exercises per week. 1st S.

2. Principles of Breeding.

Lectures and recitations upon the laws of heredity; value of selection in improving and maintaining a high standard of excellence in farm stock; variation, cause and extent; methods of breeding, including discussion of inbreeding, crossing and grading. Elective for Agricultural Seniors.

Two exercises per week. 2nd S.

3. Stock Feeding.

Lectures and recitations upon the laws of nutrition; composition and digestibility of feed stuffs; influence of feed on the animal body, preservation of coarse fodders; a study of leading cereals and by-products. Practice will be given in computing and compounding rations for various purposes. For Agricultural Juniors.

Three exercises per week. 2nd S.

4. Veterinary Science.

Lectures and recitations upon anatomy and physiology of the animal body; holding a post-mortem; simple farm medicines and

methods of administering; breeding and some of its effects; common farm operations; common infectious and contagious diseases affecting farm animals and methods of treatment. Elective for Agricultural Juniors.

Three exercises per week. 2nd S.

5. Poultry.

Lectures and recitations upon different classes and varieties of poultry; breeding and feeding; location and building of poultry houses; a study of incubators and brooders; methods of preventing disease. Practice will be given in scoring. Elective for Agricultural Seniors.

Two exercises per week. 2nd S.

6. Advanced Livestock.

This is a course laid out especially for those students who have shown proficiency in the previous courses having to do with Livestock. Special problems will be worked out as desired by the students concerning the breeds and their management; advanced live stock judging will also be given. Elective for Agricultural Juniors.

Three exercises per week. 2nd S.

7. Animal Mechanics.

Lectures and recitations upon the conformation, soundness and anatomy of the horse, the principles of mechanics involved as applied to the animal machine, proportions and conformation of horses for speed and draft; various gaits; practical exercises in measuring animals and testing value of given measurements for given purposes. Course to be given every other year beginning with 1905. Elective for Agricultural Seniors or Juniors.

Four exercises per week. 1st S.

BOTANY.

PROF. BROOKS, MR. LEWIS.

1. General Botany. Prof. Brooks, Mr. Lewis.

Lectures and laboratory work on the fundamental principles of plant physiology, followed by the study of a series of representative cryptogams. For Agricultural Sophomores, elective for General Course Sophomores.

Three exercises per week. 1st S.

2. General Botany. Prof. Brooks, Mr. Lewis.

This course continues the work on type forms begun in Course 1 and includes the study of vascular cryptogams, gymnosperms and angiosperms. The latter part of the semester will be devoted to a study of plant families and plant societies as represented in the local flora. Lectures, laboratory and field work. For Agricultural Sophomores, elective for General Course Sophomores.

Open only to students who have completed Course 1.

Three exercises per week. 2nd S.

3. Plant Pathology. Prof. Brooks.

This course deals with the nature, cause and prevention of plant diseases and includes a systematic consideration of parasitic fungi. Lectures and laboratory work. Elective for Agricultural Juniors and General Course Juniors and Seniors.

Open only to students who have completed Course 2.

Four exercises per week. 1st S.

4. Mycology. Prof. Brooks.

A study of representative groups of fungi, including the bacteria; culture methods and pathological work with fungous diseases. Lectures, laboratory and field work. Elective for Agricultural Juniors and General Course Juniors and Seniors.

Open only to students who have completed Course 2.

Three exercises per week. 2nd S.

5. Plant Physiology. Prof. Brooks, Mr. Lewis.

Lectures and experimental work on absorption, nutrition, growth, respiration and irritability. Elective for Agricultural Juniors and General Course Juniors and Seniors.

Open only to students who have completed Course 2.

Three exercises per week. 2nd S.

6. Plant Histology. Mr. Lewis.

A minute study of plant cells and plant tissues, starches, aleurones and other cell contents; use of reagents and stains; cutting and mounting of sections. Lectures and laboratory work. Elective for General Course Juniors and Seniors and Agricultural Seniors.

Open only to students who have completed Course 2.

Three exercises per week. 1st S

7. 8. Advanced Botany. Prof. Brooks, Mr. Lewis.

Opportunity to do original work along special lines will be offered to students who have shown special ability in the preceding courses.

Three exercises per week throughout the year.

CHEMISTRY.

ORGANIC CHEMISTRY—PROF. MORSE.

INORGANIC CHEMISTRY—PROF. PARSONS,

ASST. PROF. JAMES, DR. RANDALL.

1. Inorganic Chemistry.

Lectures and recitations on general and theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solution of chemical problems will be required. For all Freshmen.

Three exercises per week. 1st S.

2. Inorganic Chemistry.

Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc.

Open only to students who have completed Course 1.

Two exercises per week. 2nd S.

3. Elementary Physical Chemistry.

A short elementary course of ten lectures on the Dissociation Theory and its application; the Mass Law, etc. To accompany Courses 2 and 4.

Elective by special arrangement.

4. Qualitative Analysis.

Course 4 consists of laboratory practice, with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases and to keep a full set of notes. He will have practice in the writing of reactions and will fill out numerous slips containing questions bearing upon his work. For Chemical Freshman, Electrical and Mechanical Freshmen (Division 1), Agricultural Sophomores and Electrical and Mechanical Sophomores (Division 2); elective for General Course Sophomores and Juniors.

Open only to students who have completed Course 1.

Freshman Year. 2nd S.

Sophomore and Junior Years. 1st S.

Fifty-one exercises.

5. Qualitative Analysis.

A short advanced course for Chemical Sophomores on insoluble substances and the rarer elements, to precede Chemistry 10. First five weeks.

Twenty-five exercises. 1st S.

6. Organic Chemistry. Prof. Morse.

Lectures and recitations. A study of the chemistry of the carbon compounds. For Agricultural and Chemical Sophomores, elective for General Course Juniors.

Open only to students who have completed Chemistry 1 and 2.

Three exercises per week. 2nd S.

7. Chemistry of Plant and Animal Nutrition. Mr. Morse.

Lectures and recitations on the composition of plants, animals and foods. For Agricultural and Chemical Juniors, elective for General Course Seniors.

Open only to students who have completed Chemistry 6.

Two exercises per week. 1st S.

8. Organic Chemical Laboratory. Prof. Morse.

The course consists mainly of laboratory practice in preparing and purifying organic compounds and a study of qualitative organic reactions and analyses. Lectures and recitations will be held from time to time in connection with the practice. For Chemical Juniors, elective for General Course Juniors.

Three exercises per week. 1st S.

10. Quantitative Analysis.

A preliminary course in quantitative analysis to familiarize the student with the general methods of chemical manipulation and analysis. For Chemical Sophomores. Elective in the General Course in Sophomore, Junior and Senior Years, provided laboratory facilities permit. Last twelve weeks.

Open only to students who have completed Chemistry 4.

Five exercises per week. 1st S.

11. Quantitative Analysis.

A continuation of Course 10. For Chemical Sophomores.

Six exercises per week. 2nd S.

12. Advanced Quantitative Analysis.

Course 12 is arranged for students of the Chemical Courses, and is intended to fit them for work in the laboratories of agri-

cultural experiment stations, fertilizer works, iron works, sugar refineries, etc., and for the duties of the public analyst. This course will be made to fit the end which each has in view, and will be largely an individual one. For those students desiring to specialize in agricultural and food chemistry the analysis made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, foodstuffs, sugars, etc. For the student wishing to enter metallurgical works, the analyses will be in the main upon iron and steel and other metals, ores, limestones, slags, alloys, fuels, etc. As a preparation for the study of medicine, work will be done on poisons, foods, drugs, urine, etc. Other lines will be arranged to meet the wants of the individual student. Each student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary and industrial chemistry, in order to lay a foundation for any future work which may be required of him. A short course in gas and oil analysis will also be provided. For Chemical Juniors.

Open only to students who have completed Course 11.

Five exercises per week. 1st S.

13. Advanced Quantitative Analysis.

A continuation of Course 12. For Chemical Juniors.

Four exercises per week. 2nd S.

14. Industrial Chemistry.

Course 14 consists of lectures on chemical manufactures, such as sugar, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints, dyes, soaps, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern views, and trips to the leading New England cities to examine important chemical manufactures will be taken as far as practicable. For Chemical Juniors and Seniors.

Open only to students who have completed Courses 1 and 2.

Two exercises per week. 2nd S.

15. Metallurgy.

Course 15 consists of lectures describing the processes employed in the smelting of ores of iron, lead, copper, zinc, silver, gold, etc., and upon the methods used in refining these metals. The lectures are illustrated by stereopticon and by specimens of metallurgical products. For Chemical Juniors or Seniors.

Open only to students who have completed Courses 1 and 2.

One exercise per week. 2nd S.

Courses 14 and 15 are given in alternate years with Course 22.

16. Assaying.

A course in the fire assay of gold and silver ores. For Chemical Seniors.

Open only to students who have taken Courses 10 or 18.

Seventeen exercises. 1st S.

17. Agricultural Analysis.

This course is arranged especially for students of the agricultural course, and consists mainly of the quantitative determination of the constituents of milk, butter, fertilizers, grain, etc. Elective, subject to desk room in laboratory.

Open only to students who have completed creditably the work of Courses 1, 2, and 4.

Three exercises per week.

18. Metallurgical Analysis.

This course is arranged for the students of the engineering departments who may elect the same, and consists mainly of the quantitative determination of ores, slags, metals, alloys, fuels, etc. Elective, subject to desk room in the laboratory.

Open only to students who have completed creditably the work of Courses 1, 2, and 4 or 5.

Three exercises per week.

19. Chemical Journals, Methods, etc.

The work consists of the study of current chemical literature, mainly in the German language, with recitations twice a week. Each student will be expected to prepare abstracts, reports, criticisms, etc., upon assigned articles. For Chemical Juniors.

Open to students who have begun Course 11.

Two exercises per week. 1st S.

20. Chemical Journals.

A continuation of Course 19. For Chemical Juniors.

Two exercises per week. 2nd S.

21. Physical Chemistry, Lectures.

The work consists of advanced study of chemical theory. Practical experiments will be performed, with the aid of the student, in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, ionization, electrolysis, molecular and atomic volume, thermo chemistry, equilibrium, the phase rule, etc., will take up

much of the time. For Chemical Juniors and Seniors. Course 21 comes in alternate years.

Open only to students who have completed Courses 1, 2 and 10.

Two exercises per week. 1st S.

22. Physical and Electro Chemistry, Lectures.

A continuation of Course 21, and is given in alternate years with Courses 14 and 15. For Chemical Juniors or Seniors.

Three exercises per week. 2nd S.

23. Chemical Research.

Especially arranged for students of the chemical engineering course. May merge at any time into 24 and will usually do so about the middle of the first semester. For Chemical Seniors.

Eight exercises per week. 1st S.

24. Thesis.

The work of the last semester of the chemical engineering course is given up to the special study of some selected subject in any branch of chemical science and the student is required to present a thesis showing him to be capable of independence of thought and manipulation. For Chemical Seniors.

Eight exercises per week. 2nd S.

DAIRYING.

ASSOC. PROF. RASMUSSEN.

1. Farm Dairying.

Lectures and recitations on the Babcock test, tests for determining acidity in milk and on the use of the lactometer in detecting adulterations in milk. Includes also a study of the composition of milk, separation and churning. The laboratory work will be made applicable to farm conditions. For Agricultural Juniors.

Four exercises per week. 1st S.

2. Advanced Butter Making.

A study of the secretion, chemical and physical properties of milk, pasteurization, cream ripening, commercial starters, churning, marketing and scoring of butter. The laboratory work will be made applicable to factory conditions.

Open only to students who have completed Course 1.

Three exercises per week. 2nd S.

3. Technology of Milk.

Consists of a study of the uses of milk and its by-products outside the scope of butter and cheese making; the production and preparation of sanitary, certified, modified milk; the making of condensed milk and koumiss; the manufacture of casein and milk sugar, and the preparation of ices and ice cream. Elective for Agricultural Juniors and Seniors.

Open only to students who have completed Course 1.

Two exercises per week. 2nd S.

4. Factory Management.

This course is designed for students wishing to fit themselves for managers of large factories and other dairy establishments. It consists of a study of the organization, location, construction, and operation of factories; special problems connected with the manufacturing of butter; dairy conditions and methods in foreign countries.

Open only to students who have completed Course 2.

Three exercises per week. 1st S.

5. Dairy Bacteriology and Cheese Making.

Lectures and demonstrations on the function of bacteria and the application of bacteriological principles to dairy work.

A course of lectures will be given covering the details of the manufacturing, curing and marketing of the more important kinds of cheese.

Open only to students who have completed Course 1.

Two exercises per week. 2nd S.

6. Dairy Research.

A study of the work of the experiment stations and other dairy literature. Elective for Agricultural Seniors.

Open only to students who have completed Courses 1, 2 or 3.

Two exercises per week. 1st S.

DRAWING.

PROF. PUTNAM, MR. LATON.

These courses are of an industrial nature and include both freehand and mathematical branches of this subject.

1. Industrial Drawing. Prof. Putnam, Mr. Laton.

Free-hand lettering, free-hand drawing, use of instruments, mathematical drawing, inking, tinting, tracing and blue-prints.

Systems of object drawing; orthographic projection; isometric drawing; mechanical perspective, shades and shadows. For Ag-

gricultural and Engineering Freshmen, elective for General Course Freshmen.

Agricultural and General Course Freshmen.

Two exercises per week. 1st S.

Engineering Freshmen.

Two and one-half exercises per week. 1st S.

NOTE.—Alternating with shop-work on Wednesdays.

2. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Recitations and drawing exercises in the solution of geometrical problems by orthographic projection.

For Engineering Freshmen. (Divisions 1 and 2.)

Division 1, whole semester.

Three exercises per week. 2nd S.

Division 2, first ten weeks.

Two exercises per week. 2nd S.

3. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Continuation of 2. Practical problems on bridge beams, rafters, piping, etc.

For Engineering Freshmen (Division 2). Last seven weeks.

Two exercises per week. 2nd S.

4. Design of Farm Buildings. Prof. Putnam.

This course consists of drawings of floor plans and framing details for farm buildings in preparation for the Rural Architectural Course of the Senior Year. For Agricultural Freshmen.

Two exercises per week. 2nd S.

5. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Same as Course 3. For Electrical and Mechanical Sophomores (Division 1). First seven weeks.

Two and one-half exercises per week. 1st S.

6. Elementary Machine Drawing. Mr. Laton.

Mechanism drawing; detail and assembly drawing of simple machines. For Electrical and Mechanical Sophomores.

Division 1, last ten weeks.

Two exercises per week. 1st S.

Division 2, whole semester.

Two exercises per week. 1st S.

7. Elementary Machine Drawing and Free Hand Drawing of Chemical Apparatus. Mr. Laton.

For Chemical Sophomores.

Two exercises per week. 1st S.

8. Machine Drawing. Mr. Laton.

Working drawings of various machines and machine tools including steam boiler and engine details. For Electrical and Mechanical Sophomores.

Two and one-half exercises per week. 2nd S.

NOTE.—Alternating with shop-work on Wednesdays.

9. Free-Hand Drawing. Prof. Putnam.

Light and shade drawing from casts and still life. Charcoal work. Elective for General Course Sophomores.

Two exercises per week. 1st S.

10. Free-Hand Drawing.

Wash drawings and water color work; pencil sketching from nature and exercises in perspective. Elective for General Course Sophomores.

Two exercises per week. 2nd S.

11. Architectural Drawing.

Studies of architectural detail and historic ornament. Elective for General Course Juniors.

Three exercises per week. 1st S.

12. Architectural Drawing.

Continuation of 11. The design of a building with details of ornament. Elective for General Course Juniors.

Three exercises per week. 2nd S.

13. Advanced Architectural Drawing.

Elective for General Course Seniors.

Open only to students who have completed Courses 11 and 12.

Three exercises per week. 1st S.

14. Advanced Architectural Drawing.

Elective for General Course Seniors.

Open only to students who have completed Courses 11, 12 and 13.

Two exercises per week. 2nd S.

16. Free-hand or Charcoal Drawing.

Elective for General Course Freshmen. Last seven weeks.

Four exercises per week. 2nd S.

ELECTRICAL ENGINEERING.

PROF. HEWITT, ASST. PROF. BUCK.

1. Dynamo Electric Machinery.

The course begins with a general study of both direct and alternating current dynamos and motors, including elementary theory, with a large number of practical problems to illustrate application of same. For Electrical and Mechanical Juniors.

Open only to students who have completed Physics 2 and Mathematics 6.

Three exercises per week. 1st S.

2. Dynamo Electric Machinery.

This course is a continuation of Course 1. It takes up the theory of armature winding and construction; the general points of design; a study of various types of electrical machinery; laboratory methods of measurements, the various electrical quantities such as electric motive force, current, resistance, permeability of iron, the use of standard instruments; the laws of electrolysis; thermo-electric currents, etc. For Electrical and Mechanical Juniors.

Open only to students who have completed Course 1.

Three exercises per week. 2nd S.

4. Electrical Laboratory.

This course consists of the measurement of resistances, inductances, the calibration of a ballistic galvanometer and Ryan electrometer, the permeabilities of samples of iron. Tests are made to determine the characteristic curves, efficiency curves, etc. The determination of the candle power of incandescent and arc lamps, the calibration of resistances, the measurement of power in alternating current circuits, alternator characteristics, the testing of synchro-

nous and polyphase motors, transformers, power measurements by wattmeters and a general study of polyphase machinery constitute the remainder of the course. For Electrical Juniors.

Open only to students who have completed Course 1.

Two exercises per week. 2nd S.

6. Telegraph and Telephone.

This course consists in a careful study of the elementary electrical principles of telegraphy; the construction and connection of lines, repeaters; high speed telegraphy; simple and multiplex telegraphy; submarine signalling; automatic devices, general electric signalling for purposes of alarms, railroads, etc., and wireless telegraphy; also a course of lectures and recitations on the acoustic and electrical principles of telephony; the different forms of calling and receiving apparatus and accessories and simple circuits. The last part of the course is devoted to the consideration of the more complex forms of circuits, exchange switchboards, transfer systems and the construction of overhead and underground systems. For Electrical Juniors.

One exercise per week. 2nd S.

11. Electrical Engineering Practice.

This course takes up the study of the properties of periodic curves; the effects of self-induction and capacity and a more detailed study of dynamos, motors, transformers and other electrical apparatus. For Electrical Seniors.

Open only to students who have completed Course 2.

Three exercises per week. 1st S.

12. Electrical Engineering Practice.

This course is a continuation and completion of Course 11. It takes up more advanced theory and general practice. It also includes a thorough study of High Tension Power Transmission and deals with the selection of apparatus for generating stations and the distributing systems. A study will be made of the proper combinations of apparatus to correctly represent standard theory and practice. The design of the transmission line and of the distributing systems will be considered. The application of the theory will be brought out in lectures and established with a large number of practical problems. A careful study will be

given to the various methods used for lightning protection. For Electrical Seniors.

Open only to students who have completed Course 11.

Four exercises per week. 2nd S.

13. Electric Railways.

In this course will be considered the principles which govern the application of electric motors to railway service, and the location of power and sub-stations as determined by economic questions. Following this will be given the practical points involved in the selection and operation of railway equipment including power and sub-station equipment, line and track, railway motors and car equipment, storage batteries, etc. The problem of utilizing electric energy in mining will also be considered. For Electrical Seniors.

Open only to students who have completed Course 2.

Two exercises per week. 1st S.

15. Electrical Laboratory.

This course is a continuation of Course 4 covering a more advanced series of experiments. A written report will be required for which one additional credit hour will be given. For Electrical Seniors.

Open only to students who have completed Course 4.

Four exercises per week. 1st S.

16. Electrical Laboratory.

This course is a continuation of Course 15 and takes up experiments of a more advanced nature. A written report will be required for which one additional credit hour will be given. For Electrical Seniors.

Open only to students who have completed Course 15.

Three exercises per week. 2nd S.

17. Electrical Laboratory.

This course is similar to Course 4 only a specially arranged series of experiments is provided adapted to the needs of students in the Mechanical Engineering Course. A written report will be required for which one additional credit hour will be given. For Mechanical Seniors.

Open only to students who have completed Course 2.

Two exercises per week. 1st S.

18. Thesis.

A deposit of fifteen dollars to cover any damage done to instruments or apparatus, etc., is required in this course. Any unexpended balance is refunded at the close of the college year. Where apparatus is constructed as a part of a thesis, it shall remain the property of the department. For Electrical Seniors.

Three exercises per week. 2nd S.

19. Dynamo Electric Machinery.

This course is a continuation of Course 2, but arranged to meet the requirements of students in Mechanical Engineering. This course is not as advanced as Course 11, but covers the same subjects in a more elementary manner. For Mechanical Seniors.

Open only to students who have completed Course 2.

Three exercises per week. 1st S.

20. Dynamo Electric Machinery.

This course is a completion of Course 19. For Mechanical Seniors.

Open only to students who have completed Course 19.

Two exercises per week. 2nd S.

21. Industrial Electricity.

This course consists of a careful study of the principles and methods employed in electrical measurements, such as resistance of wire and batteries, e. m. f. of cells, current measurement by ammeters and electrolysis, the use of electrical measuring instruments and a series of laboratory experiments specially arranged to meet the requirements of Chemical Engineers. A brief study will be made of the dynamo, motor, transformer, primary and secondary batteries, arc and incandescent lamps and the general principles of electrical distribution. Experiments in electrolysis, electrical furnaces, reduction of metals, etc. are provided. For Chemical Seniors.

Three exercises per week. 1st S.

22. Industrial Electricity.

This course is a continuation of Course 21, but more advanced in nature. For Chemical Seniors.

Open only to students who have completed Course 21.

Three exercises per week. 2nd S.

ENGLISH.

PROF. GROVES, MR. SPENCER.

1. English Composition and Rhetoric. Mr. Spencer.

The theory of composition, theme writing, book reviews and an introduction to the principles of literary criticism. For all Freshmen.

Three exercises per week. 1st S.

2. English Composition and Rhetoric. Mr. Spencer.

This is a continuation of Course 1.

Open only to students who have completed Course 1.

Three exercises per week. 2nd S.

3. Advanced English Composition and Criticism. Mr. Spencer.

(a) Composition. The four forms of composition (narration, description, exposition and argumentation) will be taken up and practice given in each form. There will also be daily and weekly themes based on topics of the day, (editorials), and on required readings. (Gardner's Forms of Prose Literature.)

(b) Criticism. The history of criticism will be studied briefly, each student having one novel and one poet to criticise. (Winchester's Principles of Literary Criticism). Elective for General Course Sophomores and Juniors.

Three exercises per week. 1st S.

4. The English Drama. Mr. Spencer.

Lectures on the English drama, with required readings in Shakespeare, Sheridan and Goldsmith. There will also be recitations and discussions. Elective for General Course Juniors and Seniors.

Three exercises per week. 2nd S.

5. The English Novel. Prof. Groves.

A seminar study of the development of the English novel. Elective for General Course Juniors and Seniors after consultation with the instructor.

Three exercises per week. 1st S.

6. English Literature. Prof. Groves.

The historical development of English literature. This course is designed to set forth the philosophy of literature and the

relation of writers to their predecessors and contemporaries. Text books, lectures and readings. For Agricultural and Chemical Seniors and General Course Sophomores or Juniors.

Three exercises per week. 2nd S.

7. American Literature. Prof. Scott.

Lectures with an extensive course of reading. Elective for General Course and Agricultural Seniors.

Four exercises per week. 2nd S.

FORESTRY.

PROF. PICKETT.

1. Principles of Forestry.

This course is intended to give the student a knowledge of the various methods of forestry management in Europe and America. The text and lectures will cover the use of trees for shelter, shade and ornament, and their propagation; the value of trees for timber; how to improve existing woodlands; the influence of forests upon soils, crops and climate; the establishment and management of plantations and forest trees. For Agricultural Juniors.

Three exercises per week. 1st S.

2. Forest Technology.

This course aims to give the student advanced theoretical and practical work in establishing, improving and managing woodlands; in estimating and measuring standing timber and harvesting forest products; forest administration, laws and working plans. Seminary and laboratory work. Elective for Agricultural Seniors who have shown special ability in Course 1.

Three exercises per week. 1st S.

3. Systematic Arboriculture.

A study of the botanical and physical characters of forest trees and shrubs. Special stress is laid on the value of various trees for lumber, fuel, posts, etc. Rapidity of growth, denseness and strength of fiber, etc. are features given particular attention. Elective for Agricultural Juniors who wish to specialize in Forestry.

Three exercises per week. 1st S.

4. Forest Nursery Management.

A study of the methods of propagation and care of trees, shrubs, and perennial plants in the nursery. This course will be the same as Horticulture 10 except that students specializing in forestry will be given forest trees and shrubs for laboratory work instead of fruit and ornamental plants. Elective for Agricultural Juniors who wish to specialize in Forestry.

Three exercises per week. 2nd S

FRENCH.

PROF. WHORISKEY, MR. SPENCER.

1. Elementary French. Mr. Spencer.

Essentials of French grammar and reading, with practice in speaking and writing French. Dictation. For Freshmen offering German for admission.

Three exercises per week. 1st S.

2. Elementary French. Mr. Spencer.

Continuation of Course 1. Reading of Modern French Prose; translation from English into French of connected narrative. Dictation. For Freshmen offering German for admission.

Three exercises per week. 2nd S.

3. French Prose. Prof. Whoriskey.

Reading and translation of French Prose, Composition, Poems. Elective for General Course Juniors.

Three exercises per week. 1st S.

4. French Prose, History and Travel. Prof. Whoriskey.

Reading and Translation, Composition based on some book read in class. Elective for General Course Juniors.

Three exercises per week. 2nd S.

***5. French Prose of Nineteenth Century. Prof. Whoriskey.**

Selections from Hugo, Balzac, Sand, Dumas père, Daudet will be read. Sight reading. Elective for General Course Seniors.

Three exercises per week. 1st S.

***6. French Prose of Nineteenth Century. Prof. Whoriskey.**

Continuation of Course 5. Elective for General Course Seniors.

Three exercises per week. 2nd S.

- *7. **French Literature in the Seventeenth Century.** Prof. Whoriskey.

Corneille, Racine, Molière, Bossuet, Mme. de Sévigné, La Fontaine. Elective for General Course Seniors.

Three exercises per week. 1st S.

- *8. **French Literature in the Seventeenth Century.** Prof. Whoriskey.

Continuation of Course 7. Elective for General Course Seniors.

Three exercises per week. 2nd S.

9. **French Composition.** Prof. Whoriskey.

Elective for General Course Seniors.

One and one-half exercises per week. 1st S.

10. **French Composition.** Prof. Whoriskey.

Elective for General Course Seniors.

One and one-half exercises per week. 2nd S.

GEOLOGY.

PROF. PARSONS, MR. BARROWS.

1. **Mineralogy.** Prof. Parsons.

A short course in blowpipe analysis, followed by laboratory practice in the determination and study of minerals, with special reference to their economic value. For Chemical Juniors, elective for Agricultural and General Course Juniors.

Open only to students who have completed Chemistry 1 and 2.

Two exercises per week. 2nd S.

2. **Elementary Geology.** Mr. Barrows.

A brief course in the elements of geology. Special attention is given to local geology and excursions are made to various points of interest in the vicinity. For Agricultural Juniors, elective for General Course Juniors and Seniors.

Open only to students who have completed Zoology 5.

Three exercises per week. 2nd S.

3. **Historical Geology.** Mr. Barrows.

The development of the continents of the earth and the evolution and distribution of the animal and plant forms from the

*Courses 5 and 6 are to be given in 1908-1909 and then in alternate years with 7 and 8.

earliest times to the present. Recitations, lectures and laboratory work. Elective for Agricultural and General Course Seniors.

Three exercises per week. 1st S.

GERMAN.

PROF. WHORISKEY, MR. SPENCER.

1. Elementary German. Prof. Whoriskey.

German Grammar. Declension of articles, nouns, adjectives and pronouns; verbs, weak and strong. Reading of simple stories; conversation. Dictation. For Freshmen offering French for admission.

Three exercises per week. 1st S.

2. Elementary German. Prof. Whoriskey.

Continuation of Course 1. Verbs, modal auxiliaries, essentials of syntax. Composition, Reading and Translation; Poems. Dictation. For Freshmen offering French for admission.

Three exercises per week. 2nd S.

3. German Prose of the Nineteenth Century. Prof. Whoriskey. Mr. Spencer.

Reading and Translation. Composition based on some book read in class. For all Sophomores.

Three exercises per week. 1st S.

4. Scientific German. Prof. Whoriskey, Mr. Spencer.

Reading and Translation. Composition. For all Sophomores.

Three exercises per week. 2nd S.

*5. Goethe. Prof. Whoriskey.

His Life and Works. Elective for General Course Seniors.

Three exercises per week. 1st S.

*6. Goethe. Prof. Whoriskey.

Continuation of Course 5. Elective for General Course Seniors.

Three exercises per week. 2nd S.

*7. Schiller. Prof. Whoriskey.

Life and Works. Elective for General Course Seniors.

Three exercises per week. 1st S.

***8. Schiller.**

Continuation of Course 7. Elective for General Course Seniors.

Three exercises per week. 2nd S.

9. German Composition. Prof. Whoriskey.

One and one-half exercises per week. 1st S.

10. German Composition. Prof. Whoriskey.

One and one-half exercises per week. 2nd S.

HISTORY.

PROF. SCOTT.

In the courses in History an important place is given to historical reading carried on in the reference room. In some cases a considerable part of the work is written.

Courses 1 and 2 and Courses 3 and 4 are given in alternate years. Courses 3 and 4 are offered in 1909—'10.

Courses 1 to 4 are open only to students who have passed in Ancient History.

Courses 5 to 7 are open only to students who have passed in History and Constitution of the United States.

1. History of Europe from 476 to 1492.

Recitations and collateral reading. For General Course Freshmen, elective for General Course Sophomores.

Three exercises per week. 1st S.

2. History of Europe from 1492 to 1715.

Recitations and collateral reading. For General Course Freshmen, elective for General Course Sophomores.

Three exercises per week. 2nd S.

3. History of Europe from 1715 to 1815. The French Revolution.

Recitations and collateral reading. For General Course Freshmen, elective for General Course Sophomores.

Three exercises per week. 1st S.

* Courses 7 and 8 are to be given in 1908-09 and then in alternate years with 6 and 7.

4. History of Europe since 1815.

Recitations and collateral reading. For General Course Freshmen, elective for General Course Sophomores.

Three exercises per week. 2nd S.

5. American History to 1783.

For Agricultural Seniors, elective for General Course Juniors.

Three exercises per week. 1st S.

6. Political and Constitutional History of the United States from 1783 to 1837.

For Agricultural Seniors, elective for General Course Juniors.

Three exercises per week. 2nd S.

7. Political and Constitutional History of the United States since 1837.

Elective for General Course Seniors.

Three exercises per week. 1st S.

HORTICULTURE.

PROF. PICKETT, MR. WICKS, MR. LUMSDEN.

With the rapid development of agricultural education, the science of horticulture has become more clearly defined. Horticulture is sub-divided into five classes, viz: (1) Pomology, or fruit growing; (2) Olericulture, or Vegetable Gardening; (3) Floriculture, or Flower Growing; (4) Landscape Gardening; and (5) Nursery Practice.

1. Principles of Horticulture. Prof. Pickett.

This course is elementary, and comprises the fundamentals of horticulture, emphasizing the sciences upon which horticulture rests and the scope and importance of its field. For Agricultural Freshmen. First eight weeks.

Three exercises per week. 1st S.

2. Olericulture.

Lectures and recitations upon the culture, classification and identification of vegetables. The storing and marketing of vegetables are also considered. For Agricultural Freshmen.

Open only to those who have completed Course 1.

Two exercises per week. 2nd S.

3. Practical Pomology. Mr. Wicks.

Dealing with problems of fruit growing such as location, choice of site, kind and adaptability of soil for fruit growing, soil management, planting of orchards, pruning, sprays and spraying, thinning, harvesting and marketing. Lectures and laboratory work. For Agricultural Sophomores.

Three exercises per week. 2nd S.

4. Greenhouse Construction and Management. Mr. Lumsden.

Lectures, recitations and laboratory work. This course aims to familiarize the student with modern methods of greenhouse work and the more important plants grown under glass. Soils, varieties, culture, marketing, enemies, etc., are studied. Each student is required to do practical work in propagating, potting, watering, ventilating, etc. A study is made of the history and development of different types of greenhouses, including methods of heating and general management. For Agricultural Juniors.

Two exercises per week. 1st S.

5. Landscape Gardening. Mr. Lumsden.

An elementary course in ornamental and landscape gardening with special reference to the beautifying of home surroundings. Elective for Agricultural Juniors.

Two exercises per week. 2nd S.

6. Vegetable Gardening under Glass. Mr. Lumsden.

A study of the methods of growing market vegetables in greenhouses. Lectures and practical exercises in the greenhouse. Elective for Agricultural Seniors.

Two exercises per week. 2nd S.

7. Nursery Management. Prof. Pickett.

A study of the methods of propagation and care of trees, shrubs and perennial plants in the nursery. Lectures, reference readings and practice. Elective for Agricultural Juniors.

Three exercises per week. 2nd S.

8. Small Fruit Culture. Mr. Wicks.

A comprehensive study of the small fruits such as the strawberry, raspberry, blackberry, currant and gooseberry. Each kind of fruit is studied with reference to all the essential points such

as history, classification, propagation, planting, pruning, enemies, diseases, picking and marketing. Elective for Agricultural Juniors.

Two exercises per week. 1st S.

9. Commercial Floriculture. Mr. Lumsden.

A study of the growing of cut flowers and decorative plants. Lectures and practical exercises in the greenhouse. Elective for Agricultural Seniors.

Three exercises per week. 1st S.

10. Evolution and Improvement of Plants. Prof. Pickett.

The application of the principles of evolution to the improvement of plants. Variation, selection and heredity as applied to the problems of plant breeding in agricultural practice. Elective for Agricultural Seniors.

Two exercises per week. 2nd S.

11. Commercial Orcharding and Systematic Pomology. Mr. Wicks.

This course deals with problems of marketing fruits, packing, transportation, storage, market requirements and formation of fruitgrowers' associations and handling of by-products. Lectures and reference reading. Elective for Agricultural Seniors.

Four exercises per week. 1st S.

12. Advanced Landscape Gardening. Mr. Lumsden.

A study of the principles and composition of landscape gardening as applied to public and private grounds. Lectures, reference readings, and plans. Elective for Agricultural Seniors.

Open only to students who have completed Course 7.

Two exercises per week. 2nd S.

13. Advanced Vegetable Gardening.

The management of commercial vegetable gardening establishments; rotation of crops, manures, markets and special crops. Elective for Agricultural Seniors.

Two exercises per week. 2nd S.

MACHINE DESIGN.

PROF. PUTNAM, MR. LATON, MR. INGHAM.

1. Mechanism. Prof. Putnam.

The study of machine parts with respect to their forms, motions and modes of connection; the kinematics of fluids; the theory of the slide valve. For Electrical and Mechanical Sophomores.

Open only to students who have completed Mathematics 1—2.

Three exercises per week. 1st S.

2. Mechanism. Prof. Putnam.

Continuation of Course 1. For Electrical and Mechanical Sophomores. First ten weeks.

Three exercises per week. 2nd S.

3. Theoretical Mechanics. Prof. Putnam, Mr. Ingham.

Composition and resolution of forces, conditions of equilibrium, center of gravity, with special attention to plane surfaces, friction, the simple machines, laws of motion, motion in a resisting medium, constrained motion, impact, work and energy, moment of inertia, particularly of plane surfaces; also strength of materials. For Engineering Juniors.

Open only to students who have completed Mathematics 1—7 inclusive and Physics 1.

Four exercises per week. 1st S.

4. Designing and Drawing. Prof. Putnam.

The application of Course 3 to practical problems worked out in the drafting room. For Electrical and Mechanical Juniors.

Open only to students who have completed Mathematics 1—7 inclusive and Physics 1.

Four exercises per week. 1st S.

5. Theoretical Mechanics. Prof. Putnam, Mr. Ingham.

Continuation of Course 3. For Engineering Juniors.

Four exercises per week. 2nd S.

6. Shop Machinery. Prof. Putnam, Mr. Laton.

The design of shop machinery of all kinds, except power plant machinery. For Mechanical Juniors.

Three exercises per week. 2nd S.

MATHEMATICS.

PROF. PETTEE, MR. LATON.

1. Algebra Completed. Prof. Pettee, Mr. Laton.

For all Freshmen.

*Four exercises per week. 1st S.***2. Solid Geometry, with advanced course.** Mr. Laton.

For Engineering Freshmen entering without the subject, elective for Agricultural and General Course Freshmen.

*Two exercises per week. 1st S.***3. Plane and Spherical Trigonometry.** Prof. Pettee, Mr. Laton.

For all Freshmen. First ten weeks.

*Four exercises per week. 2nd S.***4. Surveying.** Prof. Pettee.

Recitations, field-work and plotting, including compass, transit, plane-table and level work. For Engineering and Agricultural Freshmen, elective for General Course Freshmen. Last seven weeks.

*Four exercises per week. 2nd S.***5. Analytical Geometry.** Prof. Pettee.

For Engineering Sophomores, elective for General Course Sophomores.

*Five exercises per week. 1st S.***6. Differential and Integral Calculus.** Prof. Pettee.

For Engineering Sophomores, elective for General Course Sophomores.

*Five exercises per week. 2nd S.***7. Differential Equations.** Prof. Pettee.

Elective for General Course Juniors.

*Two exercises per week. 1st S.***8. Quaternions.** Prof. Pettee.

Elective for General Course Juniors.

Two exercises per week. 2nd S.

9. Astronomy. Prof. Pettee.

Elective for General Course Juniors and Seniors.

Two exercises per week. 2nd S.

MECHANICAL ENGINEERING.

PROF. CARDULLO, PROF. HEWITT, PROF. PUTNAM.

1. Elements of Steam Engineering. Prof. Cardullo.

Descriptive course of boilers, furnaces, steam engines and turbines, steam power appliances and gas engines. For Electrical and Mechanical Sophomores. Last seven weeks.

Three exercises per week. 2nd S.

7. Thermodynamics. Prof. Cardullo.

Study of the thermodynamic properties of gases and vapors, and of the phenomena of operation of thermodynamic engines; analysis of the causes of energy losses and methods of minimization; interpretation of indicator and temperature-entropy diagrams; study of steam engines and turbines, boilers, gas engines and producers and refrigerating machinery. For Electrical and Mechanical Juniors and Chemical Seniors.

Open only to students who have completed Physics 1 and 2 and Mathematics 1 to 6.

Three exercises per week. 1st S.

8. Thermodynamics. Prof. Cardullo.

Continuation of Course 7. For Electrical and Mechanical Juniors.

Three exercises per week. 2nd S.

9. Mechanical Laboratory. Prof. Cardullo.

Study of apparatus and methods of calibration used in engineering investigations; testing of iron, steel and wood; valve setting and indicator practice. A written report will be required for which one hour additional credit will be given.

Open only to students who have completed Physics 1 and 2 and Mathematics 1 to 6.

Two exercises per week. 1st S.

10. Mechanical Laboratory. Prof. Cardullo.

Study of miscellaneous engineering materials and apparatus, and standard methods of testing; lubricants, cement, fuels,

boilers, engines, pumps, power-plant appliances and supplies, etc. For Electrical and Mechanical Juniors.

Open only to students who have completed Course 9.

Two exercises per week. 2nd S.

11. Hydraulics. Prof. Cardullo.

A study of the principles and practice of hydraulic machinery and measurements. For Electrical and Mechanical Seniors.

Open only to students who have completed Machine Design 5 and Physics 1 and 2.

Four exercises per week. 1st S.

12. Materials of Engineering. Prof. Cardullo.

A study of the properties, commercial forms, methods of preparation and use of engineering materials. For Electrical and Mechanical Seniors.

Three exercises per week. 1st S.

13. Mechanical Laboratory. Prof. Cardullo.

A critical study and detailed analysis of the performance of engineering apparatus, particularly of steam and gas engines, hydraulic apparatus, etc. For Electrical and Mechanical Seniors.

Open only to students who have completed Course 10.

Two exercises per week. 1st S.

14. Mechanical Laboratory. Prof. Cardullo.

Continuation of Course 13. For Mechanical Seniors.

Open only to students who have completed Course 13.

Two exercises per week. 2nd S.

15. Heat Engine Design. Prof. Cardullo.

Study of the structure and proportions of heat engines; design of valves and valve gears, governors, fly wheels and principal members of steam and gas engines and steam turbines. For Mechanical Seniors.

Five exercises per week. 1st S.

16. Shop Design and Equipment. Prof. Putnam.

A study of the proper choice and arrangement of tools, machinery and equipment of all kinds for shops and factories; the design of suitable buildings for housing the same and estimates

of quantities of material and cost of construction. Particular attention will be given to textile mills and machine shops. For Mechanical Seniors.

Four exercises per week. 2nd S.

17. Power Plant Design. Prof. Hewitt, Prof. Cardullo.

A study of different types of power plants, power plant apparatus and equipment and of controlling factors in the cost of power generation and distribution; the design of a power plant to meet given conditions. For Mechanical Seniors.

Two exercises per week. 2nd S.

18. Contracts and Specifications. Prof. Hewitt.

The laws and forms of engineering contracts; standard specifications for engineering materials and apparatus. For Electrical and Mechanical Seniors.

Two exercises per week. 2nd S.

19. Economics of Engineering. Prof. Cardullo.

A discussion of the principles and practice of systems of shop organization and management, cost keeping, wage payment and methods of cost reduction; also a discussion of engineering finance, welfare work, labor conditions, factory laws, etc. For Electrical and Mechanical Seniors.

Three exercises per week. 2nd S.

METEOROLOGY.

1. Meteorology.

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes and methods of prediction of atmospheric changes. For Agricultural Seniors, elective for General Course Seniors.

Two exercises per week. 1st S.

MILITARY SCIENCE AND TACTICS.

CAPT. HUNT.

All male students, unless members of the Senior Class, or physically unfit, are required to drill and attend recitations in Military Science.

Military Science 1 to 8 inclusive consists of Military Drill and includes all the practical instruction in the following subjects:

Close and Extended Order Drills by Company and Battalion, Advance and Rear Guards, Outposts, Marches, Ceremonies, Battalion Review, Parades and Guard Mounting, Calisthenics and Gymnastics, Rifle Practice, First Aid to the Injured.

1. Military Drill.

For Freshmen.

Two exercises per week. 1st S.

2. Military Drill.

Continuation of Course 1. For Freshmen.

Two exercises per week. 2nd S.

3. Military Drill.

For Sophomores.

Two exercises per week. 1st S.

4. Military Drill.

Continuation of Course 3. For Sophomores.

Two exercises per week. 2nd S.

5. Military Drill.

For Juniors.

Two exercises per week. 1st S.

6. Military Drill.

Continuation of Course 5. For Juniors.

Two exercises per week. 2nd S.

7. Military Drill.

Elective for Seniors only.

Two exercises per week. 1st S.

8. Military Drill.

Continuation of Course 7. Elective for Seniors only.

Two exercises per week. 2nd S.

9. Infantry Drill Regulations.

Practical instruction and lectures. For Freshmen.

One exercise per week. 1st S.

10. Manual of Guard Duty and Small Arms Firing Regulations.

For Freshmen.

One exercise per week. 2nd S.

11. Military Primer.

Recitations and map problems covering advance and rear guards; outposts; patrols, etc.

For Sophomores.

One exercise per week. 1st S.

12. Military Map Reading and Sketching.

For Sophomores.

One exercise per week. 2nd S.

13. Field Service Regulations.

Preparation of problems requiring the issuing of field orders, knowledge of marches, transportation, subsistence, etc. For Juniors.

One exercise per week. 1st S.

14. Army Regulations and Preparation of Requisitions, etc.

For Juniors.

One exercise per week. 2nd S.

15. Army Organization and Administration.

Lectures and preparation of military papers. Elective for Seniors only.

One exercise per week. 1st S.

16. Army Organization and Administration.

Continuation of Course 15. Elective for Seniors only.

One exercise per week. 2nd S.

PHILOSOPHY AND PEDAGOGY.

PROF. GROVES.

1. Psychology.

An introduction to the study of mental life. The practical needs of the student are related as closely as possible to the work of the course. Elective for General Course Sophomores and Seniors.

Three exercises per week. 1st S.

2. The History of Educational Theory.

The greater part of the course is taken up with the study of the modern educational reformers, Comenius, Rousseau, Pestalozzi,

Froebel, Spencer and Herbart. Elective for General Course Freshmen and Juniors.

Two exercises per week. 2nd S.

3. Philosophy of Education.

The meaning of education is defined from the aspect of the biological, the physiological, the social, the psychological and the philosophical. Horne's Philosophy of Education.

Open only to students who have completed Course 1.

Three exercises per week. 2nd S.

4. The Problems of School Education.

The method of the recitation; management and discipline of classes, observation of teaching. Elective for General Course Juniors and Seniors.

Three exercises per week. 1st S.

5. School Administration.

Courses of study; school hygiene; school law; a discussion of the essential elements of good administration. Elective for General Course Juniors and Seniors.

Three exercises per week. 2nd S.

6. Introduction to Philosophy.

A general survey of the field of philosophy with special reference to the definition of its problems, its spirit, its method and its relation to the various sciences; the theory of thought and knowledge; the doctrine of nature and of mind. This course aims to acquaint students with the ultimate problems of thought and to suggest possible solutions. Elective for General Course Juniors and Seniors.

Three exercises per week. 1st S.

PHYSICS.

PROF. NESBIT.

1. Mechanics and Heat.

Mechanics: The principles and laws of general physics are illustrated by a number of experiments, and the student is taught to make ready application of his mathematics in the solution of problems.

It is intended to provide a foundation in the dynamics of solids, liquids and gases, and also in the subjects of statics and hydrostatics.

Instruction is given by lectures, recitations and problem work. The text used is Watson's Physics. Reference is made to Ames' Theory of Physics, Duff's Textbook of Physics, and other standard treatises.

Heat: The theories of heat are briefly discussed. The subdivisions of the subject, such as the nature of heat, its effects, thermometry, sources of heat, the transference and transformations of heat are considered in detail. Constant attention is given to the relation of these topics to the subject of thermo-dynamics. Watson's Physics is used as a text. For Agricultural and Engineering Sophomores, elective for General Course Sophomores.

Three exercises per week. 1st S.

2. Light, Sound and Electricity.

Light: The subject is approached from the geometrical and physical standpoint. A number of experiments are performed illustrative of wave motion in general, followed by a study of that form of wave motion upon which the modern theory is based.

The subject is developed progressively and due attention is given to such subjects as reflection, refraction, color, the spectrum, and interference and polarization phenomena.

The student makes a careful study of optical instruments of all classes. Watson's Physics is used as the text.

Sound: The course consists of lectures and recitations, considerable emphasis being laid upon the relation of the subject to the transmission of speech.

The text used is Stone's Elementary Lessons in Sound.

Electricity and Magnetism: Numerous experiments are performed to illustrate the various phenomena of electrostatics, magnetism, current electricity and electric waves. As the course advances, the attention of the student is constantly called to the applications of electricity to the arts and sciences. S. P. Thompson's Elementary Lessons in Electricity and Magnetism is used as a text. For Agricultural and Engineering Sophomores, elective for General Course Sophomores.

Three exercises per week. 2nd S.

3. Elements of Least Squares and the Precision of Measurements.

This course is intended to serve as an introduction to the work in the Physical Laboratory. It familiarizes the student with the

precautions necessary in taking experimental data and of properly using his data in order to secure the most reliable results.

A large number of problems are solved, illustrating the determination of physical constants and in deducing the constants of empirical equations. Bartlett's Least Squares is used as a text in Least Squares. The work in Precision of Measurements consists of a course of lectures and the solution of a number of problems illustrating the application of the subject. For Electrical and Mechanical Juniors, elective for General Course Juniors.

One exercise per week. 1st S.

4. Physical Laboratory.

The apparatus employed in the experimental part of Courses 7 and 8 is adapted to no special laboratory manual, and either notes are prepared for students' use or reference is made to the works of Watson, Ames and Bliss, E. L. Nichols, H. M. Godwin and others.

The laws of general physics are investigated experimentally. The student is encouraged to acquire skill in the manipulation of apparatus, habits of clearness and neatness in keeping records, as well as enthusiasm for independent and original investigation.

A careful study is made of the Analytical Balance, time measuring devices, heat measurements, the microscope, spectroscope, lens combinations, photometry, the laws of vibrating strings and the simple electrical measurements. The student has practice in the calibration of galvanometers and ammeters, the determination of the constants of instruments, the measurement of voltages, resistances, etc.

On the completion of Courses 4 and 5, an examination is given to test the student's knowledge of physical research, both in attacking a given problem and in thinking and acting for himself. For Electrical and Mechanical Juniors, elective for General Course Juniors.

One exercise per week. 1st S.

5. Physical Laboratory.

A continuation of Course 4. For Electrical and Mechanical Juniors, elective for General Course Juniors.

Three exercises per week. 2nd S.

A fee of ten dollars is required in Courses 4 and 5 to cover breakage, etc. Any unexpended balance is refunded to the student at the close of the college year.

6. Physical Laboratory.

Physical Laboratory work. Similar to Courses 4 and 5. For Chemical Juniors.

Three exercises per week. 2nd S.

POLITICAL SCIENCE.

PROF. SCOTT.

1. Political Economy.

An elementary course, with lectures upon some of the practical questions of the day. For General Course Sophomores, Agricultural Juniors and Engineering Seniors.

Three exercises per week. 2nd S.

2. Laws of Business.

Recitations supplemented by lectures and the discussion of cases. Elective for General Course Juniors and Seniors and Agricultural Seniors.

Three exercises per week. 1st S.

3. American Constitutional Law.

Use is made of Pomeroy's Constitutional Law, which is supplemented by the decisions of the United States Supreme Court. Special attention is given to the connections between American constitutions and American political history. Elective for General Course and Agricultural Seniors.

Three exercises per week. 1st S.

4. Money and Banking.

Recitations, readings and lectures. Elective for Agricultural Seniors and General Course Juniors and Seniors.

Courses 4 and 5 are given in alternate years. Course 4 will be offered in the year 1908—'09.

Open only to students who have completed Course 1.

Three exercises per week. 2nd S.

5. Public Finance.

Recitations, readings and lectures. Elective for Agricultural Seniors and General Course Juniors and Seniors.

Courses 4 and 5 are given in alternate years. Course 5 will be offered in the year 1909—'10.

Open only to students who have completed Course 1.

Three exercises per week. 2nd S.

SHOP WORK.

PROF. CARDULLO, MR. BROWN, MR. INGHAM.

Three hours' work in the shop is reckoned as one exercise.

1. Wood Work. Mr. Ingham.

Exercises in carpentry work, joinery and pattern making. For Engineering Freshmen, elective for General Course Freshmen. Engineering Freshmen.

Two and one-half exercises per week. 1st S.

General Course Freshmen.

Two exercises per week. 1st S.

2. Forging. Mr. Brown.

This course consists of exercises in upsetting, drawing, forming and welding. For Engineering Freshmen, (Division 2). First ten weeks.

Two exercises per week. 2nd S.

3. Forging.

Same as Course 2. For Electrical and Mechanical Sophomores, (Division 1).

Two exercises per week. 1st S.

4. Machine Work. Mr. Brown.

A Course in Turning, Facing, Thread Cutting, Milling, Shaping, Scraping, Filing and Planing. For Mechanical and Electrical Sophomores.

Two and one-half exercises per week. 2nd S.

9. General Machine Work. Mr. Brown.

Continuation of Course 4. For Electrical and Mechanical Juniors.

One exercise per week. 1st S.

10. Manufacturing. Mr. Brown.

Construction and use of jigs and special fixtures; use of limit gauges, special tools, turret and screw machinery; manufacture of some simple machine, using special appliances. For Electrical and Mechanical Juniors.

One exercise per week. 2nd S.

11. Special Shop Work.

Work arranged to suit the needs of particular students.

12. Special Shop Work.

13. Wood Work. Mr. Ingham.

Same as Course 1. For Agricultural Freshmen. Last nine weeks.

One and one-half exercises per week. 1st S.

14. Forging. Mr. Brown.

For Agricultural Freshmen.

Two exercises per week. 2nd S.

15. Machine Work. Mr. Brown.

Same as Course 4. For Chemical Seniors.

Two exercises per week. 1st S.

SPANISH.

MR. SPENCER.

1. Elementary Spanish.

This course will consist of an elementary study of Spanish grammar, supplemented and followed by reading of easy Spanish texts.

Three exercises per week. 1st S.

2. Elementary Spanish.

This course will consist of a thorough review of Spanish grammar, based on the texts studied in Spanish 1, and reading of more advanced Spanish texts.

Open only to students who have completed Course 1.

Three exercises per week. 2nd S.

ZOOLOGY.

PROF. SANDERSON, MR. BARROWS, MR. JACKSON.

The courses in Zoology are arranged in sequence for those studying Agriculture or Economic Entomology, and for those desiring a more general course fitting them for teaching or for medical studies, though any courses offered may be taken by those who have completed previous courses necessary.

1. Economic Entomology.

Insects affecting crops, domestic animals, etc., their life, histories and habits and the methods of combating them; special consideration of general farm methods for control of insects affecting staple crops, and of spraying, machinery and insecticides for combating truck and fruit insects. For Agricultural Sophomores, elective for General Course Sophomores.

Three exercises per week. 1st S.

2. General Entomology.

A general survey of the structure, habits and classification of the different orders of insects. Lectures, laboratory dissections and classification. For Agricultural Sophomores, elective for General Course Sophomores.

Open only to students who have completed Course 1.

Three exercises per week. 2nd S.

3. Vertebrate Anatomy and Physiology.

The comparison of anatomy and physiology of vertebrate animals, the general physiology of higher animals, and laboratory dissections of a few typical forms. Elective for Agricultural and General Course Juniors.

Four exercises per week. 1st S.

4. Advanced Economic Entomology.

The methods of study and general principles of combating insect pests; the literature and history of economic entomology; practice in determining and rearing and combating insect pests. Elective for Agricultural Juniors or Seniors.

Open only to students who have completed Course 2.

Three exercises per week. 2nd S.

5. Advanced Entomology.

Advanced work in General Entomology; collecting, classification and anatomical studies. Elective for Agricultural Juniors and General Course Sophomores.

Open only to students who have completed Course 1.

Three exercises per week. 2nd S.

6. Invertebrate Zoology.

The structure and life of the invertebrate animals, except insects. Lectures and laboratory dissections of typical forms. Elective for Agricultural Seniors and General Course Sophomores, Juniors and Seniors.

Three exercises per week. 1st S.

†7. General Physiology.

The vital phenomena of animal life with special reference to the nervous, digestive, muscular, secretory and sensory processes in the higher animal forms. Elective for Agricultural and General Course Juniors or Seniors.

Three exercises per week. 2nd S.

8. Evolution.

Lectures taking up the problems of variation, heredity, breeding, and selection from an experimental standpoint, and discussions of recent theories with their bearings on the question of evolution. This course is a basis for advanced work in plant and animal breeding. For Agricultural Seniors, elective for General Course Juniors and Seniors.

Three exercises per week. 1st S.

10 and 11. Advanced Zoology.

This course is arranged to suit the individual needs of students who elect Zoology for Senior year.

Open only to students who have completed previous courses and have shown proficiency in Zoology.

Three or four exercises per week throughout the year.

12. Biological Seminar.

Reports and discussions upon current literature of Zoology and Botany, special topics and observations. Elective for Agricultural and General Course Juniors and Seniors.

One exercise per week throughout the year.

FOUR YEAR COURSES.

COURSES OF STUDY AND SCHEDULE OF HOURS.

(For details see Description of Studies.)

Attendance at Chapel exercises is required of all students and attendance at Military Drill is required of all male students, unless members of the Senior Class or physically unfit.

AGRICULTURAL COURSE.

Freshman Year.

FIRST SEMESTER.

<i>Chemistry 1</i>	Inorganic Chemistry	3
<i>Drawing 1</i>	Industrial Drawing	2

†To be given only when elected by four or more students.

<i>English 1</i>	English Composition and Rhetoric	3
<i>French 1 or</i>	Elementary French	3
<i>German 1</i>	Elementary German	
<i>Horticulture 1</i>	Principles of Horticulture (first eight weeks)	1½
<i>Mathematics 1</i>	Algebra	4
* <i>Mathematics 2</i>	Solid Geometry	2
<i>Military Science 1</i>	Drill	1
<i>Military Science 3</i>	Infantry Drill Regulations.....	1
<i>Shop Work 13</i>	Wood Shop (last nine weeks)...	1½

SECOND SEMESTER.

<i>Chemistry 2</i>	Inorganic Chemistry	2
<i>Drawing 4</i>	Design of Farm Buildings.....	2
<i>English 2</i>	English Composition and Rhetoric	3
<i>French 2 or</i>	Elementary French	3
<i>German 2</i>	Elementary German	
<i>Horticulture 2</i>	Olericulture	2
<i>Mathematics 3</i>	Trigonometry (first ten weeks)..	2½
<i>Mathematics 4</i>	Surveying (last seven weeks)....	1½
<i>Military Science 2</i>	Drill	1
<i>Military Science 10</i>	Manual of Guard Duty, etc.....	1
<i>Shop Work 14</i>	Forge Shop	2

Sophomore Year.

FIRST SEMESTER.

<i>An. Husb. 1</i>	Breeds of Livestock	3
<i>Botany 1</i>	General Botany.....	3
<i>Chemistry 4</i>	Qualitative Analysis	3
<i>German 3</i>	German Prose of the Nineteenth Century	3
<i>Military Science 3</i>	Drill	1
<i>Military Science 11</i>	Military Primer	1
<i>Physics 1</i>	Mechanics and Heat	3
<i>Zoology 1</i>	Economic Entomology	3

SECOND SEMESTER.

<i>Botany 2</i>	General Botany	3
<i>Chemistry 6</i>	Organic Chemistry	3
<i>German 4</i>	Scientific German	3
<i>Horticulture 3</i>	Practical Pomology	3
<i>Military Science 4</i>	Drill	1
<i>Military Science 12</i>	Military Map Reading and Sketching	1
<i>Physics 2</i>	Light, Sound and Electricity....	3
<i>Zoology 2</i>	General Entomology	3

* Elective.

Junior Year.

FIRST SEMESTER.

<i>Agronomy</i> 1	Farm Equipment and Farm Crops	3
† <i>Botany</i> 3 or	Plant Pathology	4
† <i>Zoology</i> 3	Vertebrate Anatomy and Physi-	
	ology	4
<i>Dairying</i> 1	Farm Dairying	4
<i>Forestry</i> 1	Principles of Forestry	3
<i>Horticulture</i> 4	Greenhouse Construction and	
	Management	2
* <i>Horticulture</i> 8	Small Fruit Culture.....	2
<i>Military Science</i> 5	Drill	1
<i>Military Science</i> 13	Field Service Regulations.....	1

SECOND SEMESTER.

<i>Agronomy</i> 2	Soils and Soil Physics	3
<i>An. Husb.</i> 3	Stock Feeding	3
* <i>An. Husb.</i> 4	Veterinary Science	3
* <i>An. Husb.</i> 6	Advanced Livestock	3
* <i>Botany</i> 4 or	Mycology	3
* <i>Botany</i> 5	Plant Physiology	
* <i>Dairying</i> 3	Technology of Milk.....	2
<i>Geology</i> 2	Elementary Geology	3
* <i>Horticulture</i> 5	Landscape Gardening	3
* <i>Horticulture</i> 7	Nursery Management	3
<i>Military Science</i> 6	Drill	1
<i>Military Science</i> 14	Army Regulations	1
<i>Political Science</i> 1	Political Economy	3
* <i>Zoology</i> 4 or	Advanced Economic Entomology }	3
* <i>Zoology</i> 5 or	Advanced Entomology	
* <i>Zoology</i> 7	General Physiology	

During the Junior Year students who desire and are qualified to take up work in the Biological or Chemical Divisions of the Agricultural Course may substitute work in these divisions for Dairying 1 and Animal Husbandry 3.

Senior Year.

FIRST SEMESTER.

<i>Agronomy</i> 5	Agricultural Seminar	2
<i>History</i> 5	American History to 1783.....	3
<i>Meteorology</i> 1	Meteorology	2
<i>Thesis</i>	.....	2
<i>Zoology</i> 8	Evolution	3
<i>Elective Courses</i>	.....	6

*Elective.

†*Botany* 3 should be elected by students intending to specialize in Horticulture, *Zoology* 3, by those intending to specialize in Animal Husbandry or *Zoology*.

SECOND SEMESTER.

<i>Agronomy</i> 6	Agr. History and Economics (first nine weeks)	2
<i>Agronomy</i> 7	Farm Mechanics (last eight weeks)	2
<i>English</i> 6	English Literature	3
<i>History</i> 6	Const. and Political History of U. S. (1783-1837)	3
<i>Thesis</i>	.....	2
<i>Elective Courses</i>	.....	6

ENGINEERING COURSES.

Freshman Year.

FIRST SEMESTER.

<i>Chemistry</i> 1	Inorganic Chemistry	3
<i>Drawing</i> 1	Industrial Drawing	2½
<i>English</i> 1	English Composition and Rhetoric	3
<i>French</i> 1 or	Elementary French	3
<i>German</i> 1	Elementary German	3
<i>Mathematics</i> 1	Algebra	4
‡ <i>Mathematics</i> 2	Solid Geometry	2
<i>Military Science</i> 1	Drill	1
<i>Military Science</i> 9.	Infantry Drill Regulations.....	1
<i>Shop Work</i> 1	Wood Work	2½

SECOND SEMESTER.

<i>Chemistry</i> 2	Inorganic Chemistry	2
‡ <i>Chemistry</i> 4	Qualitative Analysis (first division)	3
<i>Drawing</i> 2	Descriptive Geometry (first division)	3
<i>Drawing</i> 2	Descriptive Geometry (second division), (first ten weeks)...	2
<i>Drawing</i> 3	Continuation of Drawing 2 (second division), (last seven weeks)	2
<i>English</i> 2	English Composition and Rhetoric	3
<i>French</i> 2 or	Elementary French	3
<i>German</i> 2	Elementary German	
<i>Mathematics</i> 3	Trigonometry (first ten weeks)..	2½
<i>Mathematics</i> 4	Surveying (last seven weeks)...	1½
<i>Military Science</i> 2	Drill	1
<i>Military Science</i> 10	Manual of Guard Duty, etc.....	1
‡ <i>Shop Work</i> 2	Forging (second division) (first ten weeks)	2

*Elective.

‡For Freshmen entering without the subject.

†Division 1 elects Chemistry 4 instead of Shop Work 2 and Division 2 elects Shop Work 2 instead of Chemistry 4.

CHEMICAL ENGINEERING COURSE.

Sophomore Year.

FIRST SEMESTER.

<i>Chemistry</i> 5	Qualitative Analysis (first five weeks)	1½
<i>Chemistry</i> 10	Quantitative Analysis (last twelve weeks)	3½
<i>Drawing</i> 7	Elementary Machine Drawing and Free Hand Drawing of Chem. Apparatus	2
<i>German</i> 3	German Prose of the Nineteenth Century	3
<i>Mathematics</i> 5	Analytical Geometry	5
<i>Military Science</i> 3	Drill	1
<i>Military Science</i> 11	Military Primer	1
<i>Physics</i> 1	Mechanics and Heat	3

SECOND SEMESTER.

<i>Chemistry</i> 6	Organic Chemistry	3
<i>Chemistry</i> 11	Quantitative Analysis	6
<i>German</i> 4	Scientific German	3
<i>Mathematics</i> 6	Calculus	5
<i>Military Science</i> 4	Drill	1
<i>Military Science</i> 12	Military Map Reading and Sketching	1
<i>Physics</i> 2	Light, Sound and Electricity....	3

Junior Year.

FIRST SEMESTER.

<i>Chemistry</i> 7	Chemistry of Plant and Animal Nutrition	2
<i>Chemistry</i> 8	Organic Chemical Laboratory....	3
<i>Chemistry</i> 12	Advanced Quantitative Analysis..	5
<i>Chemistry</i> 19	Chemical Journals	2
† <i>Chemistry</i> 21	Physical Chemistry	2
<i>Machine Design</i> 3	Theoretical Mechanics	4
<i>Military Science</i> 5	Drill	1
<i>Military Science</i> 13	Field Service Regulations	1

SECOND SEMESTER.

<i>Chemistry</i> 13	Advanced Quantitative Analysis	4
† <i>Chemistry</i> 14 and	Industrial Chemistry	2
† <i>Chemistry</i> 15 or	Metallurgy	1
† <i>Chemistry</i> 22	Physical and Electro-chemistry }	3
<i>Chemistry</i> 20	Chemical Journals	2
<i>Geology</i> 1	Mineralogy	2
<i>Machine Design</i> 5	Theoretical Mechanics	4
<i>Military Science</i> 6	Drill	1
<i>Military Science</i> 14	Army Regulations	1
<i>Physics</i> 6	Physical Laboratory	3

†Given in alternate years.

Senior Year.

FIRST SEMESTER.

<i>Chemistry 16</i>	Assaying	1
<i>Chemistry 21</i>	Physical Chemistry	2
<i>Chemistry 23</i>	Chemical Research and Thesis..	8
<i>Elect. Engineering 21</i>	Industrial Electricity	3
<i>Mech. Engineering 7</i>	Thermodynamics	3
<i>*Military Science 7</i>	Drill	1
<i>*Military Science 15</i>	Army Organization and Adminis- tration	1
<i>Shop Work 15</i>	Machine Shop	2

SECOND SEMESTER.

† <i>Chemistry 14 and</i>	Industrial Chemistry	} 2
† <i>Chemistry 15 or</i>	Metallurgy	
† <i>Chemistry 22</i>	Physical and Electro-chemistry }	} 3
<i>Chemistry 24</i>	Thesis	
<i>Elect. Engineering 22</i>	Industrial Electricity	3
<i>English 6</i>	English Literature	3
<i>*Military Science 8</i>	Drill	1
<i>*Military Science 16</i>	Army Organization and Admin- istration	1
<i>Political Science 1</i>	Political Economy	3

ELECTRICAL AND MECHANICAL ENGINEERING COURSES.

Sophomore Year.

FIRST SEMESTER.

‡ <i>Chemistry 4</i>	Qualitative Chemical Analysis..	3
<i>Drawing 5</i>	Descriptive Geometry (first di- vision) (first seven weeks)..	1
<i>Drawing 6</i>	Elementary Machine Drawing (first division), (last ten weeks)	1½
<i>Drawing 6</i>	Elementary Machine Drawing (second division)	2
<i>German 3</i>	German Prose of the Nineteenth Century	3
<i>Mathematics 5</i>	Analytical Geometry	5
<i>Machine Design 1</i>	Mechanism	3
<i>Military Science 3</i>	Drill	1
<i>Military Science 11</i>	Military Primer	1
<i>Physics 1</i>	Mechanics and Heat	3
‡ <i>Shop Work 3</i>	Forging (first division)	2

*Elective.

† Given in alternate years.

Division 1 elects Shop Work 3 instead of Chemistry 4, and Division 2 elects Chemistry 4 instead of Shop Work 3.

ELECTRICAL ENGINEERING COURSE.

JUNIOR YEAR.

FIRST SEMESTER.

ELECT. ENGINEERING 1	.	Dynamo Electric Machinery,	.	.	.	3
MACHINE DESIGN 3	.	Theoretical Mechanics,	.	.	.	4
MACHINE DESIGN 4	.	Designing and Drawing,	.	.	.	4
MECH. ENGINEERING 7	.	Thermodynamics,	.	.	.	3
MECH. ENGINEERING 9	.	Mechanical Laboratory,	.	.	.	2
MILITARY SCIENCE 5	.	Drill,	.	.	.	1
MILITARY SCIENCE 13	.	Field Service Regulations,	.	.	.	1
PHYSICS 3	.	Least Squares,	.	.	.	1
PHYSICS 4	.	Physical Laboratory,	.	.	.	1
SHOP WORK 9	.	Machine Work,	.	.	.	1

SECOND SEMESTER.

ELECT. ENGINEERING 2	.	Dynamo Electric Machinery,	.	.	.	3
ELECT. ENGINEERING 4	.	Electrical Laboratory,	.	.	.	2
ELECT. ENGINEERING 6	.	Telegraph and Telephone,	.	.	.	1
MACHINE DESIGN 5	.	Theoretical Mechanics,	.	.	.	4
MECH. ENGINEERING 8	.	Thermodynamics,	.	.	.	3
MECH. ENGINEERING 10	.	Mechanical Laboratory,	.	.	.	2
MILITARY SCIENCE 6	.	Drill,	.	.	.	1
MILITARY SCIENCE 14	.	Army Regulations,	.	.	.	1
PHYSICS 5	.	Physical Laboratory,	.	.	.	3
SHOP WORK 10	.	Manufacturing,	.	.	.	1

ELECTRICAL ENGINEERING COURSE.

SENIOR YEAR.

FIRST SEMESTER.

ELECT. ENGINEERING 11	Elect. Engineering Practice,	3
ELECT. ENGINEERING 13	Electrical Railways,	2
ELECT. ENGINEERING 15	Electrical Laboratory,	4
MECH. ENGINEERING 11	Hydraulics,	4
MECH. ENGINEERING 12	Materials of Engineering,	3
MECH. ENGINEERING 13	Mechanical Laboratory,	3
*MILITARY SCIENCE 7 .	Drill,	1
*MILITARY SCIENCE 15 .	Army Organization and Administration, .	1

SECOND SEMESTER.

ELECT. ENGINEERING 12	Elect. Engineering Practice,	4
ELECT. ENGINEERING 16	Electrical Laboratory,	3
ELECT. ENGINEERING 18	Thesis,	3
MECH. ENGINEERING 14	Mechanical Laboratory,	3
MECH. ENGINEERING 19	Economics of Engineering,	3
*MILITARY SCIENCE 8 .	Drill,	1
*MILITARY SCIENCE 16 .	Army Organization and Administration, .	1
POLITICAL SCIENCE 1 .	Political Economy,	3

*Elective.

SECOND SEMESTER.

<i>Drawing</i> 8	Machine Drawing	2½
<i>German</i> 4	Scientific German	3
<i>Mathematics</i> 6	Calculus	5
<i>Machine Design</i> 2	Mechanism (first ten weeks) ..	3
<i>Mech. Engineering</i> 1	Elements of Steam Engineering (last seven weeks)	
<i>Military Science</i> 4	Drill	1
<i>Military Science</i> 12	Military Map Reading and Sketching	1
<i>Physics</i> 2	Light, Sound and Electricity....	3
<i>Shop Work</i> 4	Machine Work	2½

MECHANICAL ENGINEERING COURSE

Junior Year.

FIRST SEMESTER.

<i>Elec. Engineering</i> 1	Dynamo Electric Machinery.....	3
<i>Machine Design</i> 3	Theoretical Mechanics	4
<i>Machine Design</i> 4	Designing and Drawing	4
<i>Mech. Engineering</i> 7	Thermodynamics	3
<i>Mech. Engineering</i> 9	Mechanical Laboratory.....	2
<i>Military Science</i> 5	Drill	1
<i>Military Science</i> 13	Field Service Regulations	1
<i>Physics</i> 3	Least Squares	1
<i>Physics</i> 4	Physical Laboratory	1
<i>Shop Work</i> 9	Machine Work	1

SECOND SEMESTER.

<i>Elect. Engineering</i> 2	Dynamo Electric Machinery.....	3
<i>Machine Design</i> 5	Theoretical Mechanics	4
<i>Machine Design</i> 6	Shop Machinery	3
<i>Mech. Engineering</i> 8	Thermodynamics	3
<i>Mech. Engineering</i> 10	Mechanical Laboratory	2
<i>Military Science</i> 6	Drill	1
<i>Military Science</i> 14	Army Regulations	1
<i>Physics</i> 5	Physical Laboratory	3

Senior Year.

FIRST SEMESTER.

<i>Elect. Engineering</i> 17	Electrical Laboratory	2
<i>Elect. Engineering</i> 19	Dynamo Electric Machinery.....	3
<i>Mech. Engineering</i> 11	Hydraulics	4
<i>Mech. Engineering</i> 12	Materials of Engineering	3
<i>Mech. Engineering</i> 13	Mechanical Laboratory	3
<i>Mech. Engineering</i> 15	Heat Engine Design	5
* <i>Military Science</i> 7	Drill	1
* <i>Military Science</i> 15	Army Organization and Adminis- tration	1

*Elective.

SECOND SEMESTER.

<i>Elect. Engineering</i> 20	Dynamo Electric Machinery....	2
<i>Mech. Engineering</i> 14	Mechanical Laboratory	3
<i>Mech. Engineering</i> 16	Shop Design and Equipment....	4
<i>Mech. Engineering</i> 17	Power Plant Design	2
<i>Mech. Engineering</i> 19	Economics of Engineering.....	3
* <i>Military Science</i> 8	Drill	1
* <i>Military Science</i> 16	Army Organization and Adminis- tration	1
<i>Political Science</i> 1	Political Economy	3
<i>Thesis</i>	.....	3

GENERAL COURSE.

The requirements for graduation from the General Course include (1) the completion of all required studies, (2) the completion of one hundred and forty-four semester hours and (3) the election of studies during the Sophomore, Junior and Senior Years according to the group system.

The group system requires that all General Course students shall elect one *major* and two *minor* courses; the *major* to consist of twenty-one credit hours including thesis, in one of the three groups, in addition to the required work of the Freshman Year; and the *minor* to consist of fifteen credit hours in each of the other two groups, in addition to the required work of the Freshman Year.

GROUP I.

Languages and Literature:—English; French; German; Spanish.

GROUP II.

Mathematics and Sciences:—Mathematics; Zoology; Drawing; Agriculture; Mechanical Engineering; Electrical Engineering; Chemistry; Botany; Physics; Geology; Meteorology.

GROUP III.

History; Social Science and Philosophy:—History; Political Science; Philosophy and Pedagogy.

Freshman Year.

FIRST SEMESTER.

<i>Chemistry</i> 1	Inorganic Chemistry	3
* <i>Drawing</i> 1	Industrial Drawing	2

*Elective

<i>English</i> 1	English Composition and Rhetoric	3
<i>French</i> 1 or	Elementary French	3
<i>German</i> 1	Elementary German	
<i>History</i> 1	History of Europe from 476 to 1492	3
<i>Mathematics</i> 1	Algebra	4
* <i>Mathematics</i> 2	Solid Geometry	2
<i>Military Science</i> 1	Drill	1
<i>Military Science</i> 9	Infantry Drill Regulations.....	1
* <i>Shop Work</i> 1	Wood Work	2

SECOND SEMESTER.

<i>Chemistry</i> 2	Inorganic Chemistry	2
† <i>Drawing</i> 16	Free Hand or Charcoal Drawing (Last seven weeks)	1½
<i>English</i> 2	English Composition and Rhetoric	3
<i>French</i> 2 or	Elementary French	3
<i>German</i> 2	Elementary German	
<i>History</i> 2	History of Europe from 1492 to 1715	3
<i>Mathematics</i> 3	Trigonometry (first ten weeks)..	2½
† <i>Mathematics</i> 4	Surveying (Last seven weeks)..	1½
<i>Military Science</i> 2	Drill	1
<i>Military Science</i> 10	Manual of Guard Duty.....	1
* <i>Philosophy</i> 2	History of Educational Theory..	2

Sophomore Year.

FIRST SEMESTER.

† <i>Botany</i> 1 or	General Botany	3
† <i>Zoology</i> 1 or	Economic Entomology	
† <i>Zoology</i> 6	Invertebrate Zoology.....	
* <i>Chemistry</i> 4	Qualitative Analysis	3
* <i>Drawing</i> 9	Free Hand Drawing	2
* <i>English</i> 3	Advanced English Composition and Criticism	3
<i>German</i> 3	German Prose of the Nineteenth Century	3
* <i>History</i> 1 or	History of Europe from 476 to 1492	3
* <i>History</i> 3	History of Europe from 1715 to 1815	
* <i>Mathematics</i> 5	Analytical Geometry	5
<i>Military Science</i> 3	Drill	1
<i>Military Science</i> 11	Military Primer	1
* <i>Philosophy</i> 1	Psychology	3
* <i>Physics</i> 1	Mechanics and Heat	3

*Elective.

† Freshmen are required to elect either Drawing 16 or Mathematics 4. Sophomores are required to elect one out of each group.

SECOND SEMESTER.

†Botany 2 or	General Botany	}	3
†Zoology 2 or	General Entomology		
†Zoology 5	Advanced Entomology		
*Drawing 10	Free Hand Drawing		2
‡English 6	English Literature		3
German 4	Scientific German		3
*History 2 or	History of Europe from 1492 to	}	3
	1715		
*History 4	History of Europe since 1815		
*Mathematics 6	Calculus		5
Military Science 4	Drill		1
Military Science 12	Military Map Reading and		
	Sketching		1
*Physics 2	Light, Sound and Electricity...		3
*Philosophy 2	History of Educational Theory..		2
Political Science 1	Political Economy		3

Junior Year.

FIRST SEMESTER.

All elective except Military Science and Drill and English 6.

Botany 3	Plant Pathology	4
Botany 6	Plant Histology	3
Chemistry 4	Qualitative Analysis	3
Drawing 11	Architectural Drawing	3
English 3	Advanced English Composition..	3
English 5	English Novel	3
French 3	Scientific French	3
History 5	American History to 1783.....	3
Mathematics 7	Differential Equations	2
Military Science 5	Drill	1
Military Science 13	Field Service Regulations	1
Philosophy 4	Problems of School Education..	3
Philosophy 6	Introduction to Philosophy.....	3
Physics 3	Least Squares and Precision of	
	Measurements	1
Physics 4	Physical Laboratory	1
Political Science 2	Laws of Business	3
Spanish 1	Elementary Spanish	3
Zoology 3	Vertebrate Anatomy and Physi-	
	ology	4
Zoology 6	Invertebrate Zoology	3
Zoology 8	Evolution	3

SECOND SEMESTER.

Botany 4	Mycology	3
Botany 5	Plant Physiology	3

*Elective.

†Students are required to elect one of the group.

‡Required in Sophomore or Junior year.

<i>Chemistry</i> 6	<i>Organic Chemistry</i>	3
<i>Chemistry</i> 8	<i>Organic Chemical Laboratory</i> ...	3
<i>Drawing</i> 12	<i>Architectural Drawing</i>	3
<i>English</i> 4	<i>English Drama</i>	3
‡ <i>English</i> 6	<i>English Literature</i>	3
<i>French</i> 4	<i>French Prose, History and Travel</i>	3
<i>Geology</i> 1	<i>Mineralogy</i>	4
<i>Geology</i> 2	<i>Elementary Geology</i>	3
<i>History</i> 6	<i>Const. and Political History of</i>	
	U. S., 1783-1837.....	3
<i>Mathematics</i> 8	<i>Quaternions</i>	2
<i>Military Science</i> 6	<i>Drill</i>	1
<i>Military Science</i> 14	<i>Army Regulations</i>	1
<i>Philosophy</i> 3	<i>Philosophy of Education</i>	3
<i>Philosophy</i> 5	<i>School Administration</i>	3
<i>Physics</i> 5	<i>Physical Laboratory</i>	3
<i>Political Science</i> 4 or	<i>Money and Banking</i>	3
<i>Political Science</i> 5	<i>Public Finance</i>	
<i>Spanish</i> 2	<i>Elementary Spanish</i>	3
<i>Zoology</i> 7	<i>General Physiology</i>	3

Senior Year.

FIRST SEMESTER.

All elective.

<i>Botany</i> 3 or	<i>Plant Pathology</i>	3
<i>Botany</i> 6 or	<i>Plant Histology</i>	
<i>Botany</i> 7	<i>Advanced Botany</i>	
<i>Chemistry</i> 7	<i>Chemistry of Plant and Animal</i>	
	Nutrition	2
<i>Drawing</i> 13	<i>Advanced Architectural Drawing</i>	3
<i>English</i> 5	<i>English Novel</i>	3
<i>French</i> 5	<i>French Prose of 19th Century</i> ...	3
<i>Geology</i> 3	<i>Historical Geology</i>	3
<i>German</i> 5	<i>Goethe, His Life and Works</i> ...	3
<i>History</i> 7	<i>Const. and Political History of</i>	
	U. S. since 1837	3
<i>Meteorology</i> 1	<i>Meteorology</i>	2
<i>Military Science</i> 7	<i>Drill</i>	1
<i>Military Science</i> 15	<i>Army Organization and Adminis-</i>	
	tration	1
<i>Philosophy</i> 1	<i>Psychology</i>	3
<i>Philosophy</i> 4	<i>Problems of School Education</i> ...	3
<i>Philosophy</i> 6	<i>Introduction to Philosophy</i>	3
<i>Political Science</i> 2	<i>Laws of Business</i>	3
<i>Political Science</i> 3	<i>American Constitutional Law</i> ...	3
<i>Spanish</i> 1	<i>Elementary Spanish</i>	3
<i>Thesis</i>	<i>.....</i>	2
<i>Zoology</i> 6	<i>Invertebrate Zoology</i>	3
<i>Zoology</i> 8	<i>Evolution</i>	3
<i>Zoology</i> 10	<i>Advanced Zoology</i>	3 or 4

‡Required in either the Sophomore or Junior year.

SECOND SEMESTER.

<i>Botany</i> 4 or	Mycology	}	3
<i>Botany</i> 5 or	Plant Physiology		
<i>Botany</i> 8	Advanced Botany		
<i>Drawing</i> 14	Advanced Architectural Drawing		2
<i>English</i> 4	English Drama		3
<i>English</i> 7	American Literature		4
<i>French</i> 6	French Prose of 19th Century...		3
<i>Geology</i> 2	Elementary Geology		3
<i>German</i> 6	Goethe (continued)		3
<i>Mathematics</i> 9	Astronomy		2
<i>Military Science</i> 8	Drill		1
<i>Military Science</i> 16	Army Organization and Adminis- tration		1
<i>Philosophy</i> 5	School Administration		3
<i>Political Science</i> 4 or	Money and Banking	}	3
<i>Political Science</i> 5	Public Finance		
<i>Spanish</i> 2	Elementary Spanish		3
<i>Thesis</i>	.....		1 or 2
<i>Zoology</i> 7	General Physiology.....		3
<i>Zoology</i> 11	Advanced Zoology.....		3 or 4

AGRICULTURAL COURSE—FRESHMAN YEAR.

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday		Mathematics 1 French 1 German 1	Chemistry 1	Military Sci. 1	Drawing 1
Tuesday	English 1		Mathematics 1	Military Sci. 9	Drawing 1
Wednesday		Chemistry 1 1st Div.	Chemistry 1 2nd Div.	Horticulture 1 (First eight weeks)	Shop Work 13 (Last nine weeks)
Thursday	English 1	French 1 German 1	Mathematics 1	Mathematics 1	Horticulture 1 (First eight weeks) Shop Work 13 (Last nine weeks)
Friday		Chemistry 1 1st Div. French 1 German 1	Chemistry 1 2nd Div.	Military Sci. 1	Horticulture 1 (First eight weeks) Shop Work 13 (Last nine weeks)
Saturday	English 1		Mathematics 1	Mathematics 1	

SECOND SEMESTER

Monday	Military Sci. 10		Chemistry 2	Military Sci. 2	Shop Work 14 (First ten weeks) Mathematics 4 (Last seven weeks)
Tuesday	English 2	French 2 German 2		Mathematics 3 (First ten weeks)	Shop Work 14 (First ten weeks) Mathematics 4 (Last seven weeks)
Wednesday	Drawing 4	Drawing 4 French 2 German 2	Horticulture 2 Mathematics 3 (First ten weeks)	Mathematics 3 (First ten weeks) Mathematics 3 (First ten weeks)	Drawing 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Thursday	English 2			Horticulture 2	Horticulture 2
Friday	Drawing 4	Drawing 4 French 2 German 2	Chemistry 2 Mathematics 3 (First ten weeks)	Military Sci. 2 Mathematics 3 (First ten weeks)	Drawing 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Saturday	English 2				

Mathematics 2, First Semester, hours to be arranged.

AGRICULTURAL COURSE—SOPHOMORE YEAR.

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday		Military Sci. 11	†Botany 1	†Military Sci. 3	Chemistry 4
Tuesday		Zoology 1	Physics 1	German 3	Chemistry 4
Wednesday	Animal Husb. 1		Botany 1	Botany 1	Chemistry 4
Thursday	Zoology 1	Zoology 1	Physics 1	German 3	Animal Husb. 1
Friday	Animal Husb. 1		†	†Military Sci. 3	Zoology 1
Saturday	Botany 1	Botany 1	Physics 1	German 3	
SECOND SEMESTER					
Monday	Chemistry 6	Zoology 2	†Botany 2	†Military Sci. 4	Horticulture 3
Tuesday		Chemistry 6	Physics 2	German 4	Botany 2
Wednesday	Horticulture 3		Military Sci. 12		Botany 2
Thursday		Chemistry 6	Physics 2	German 4	
Friday	Horticulture 3		†Zoology 2	†Military Sci. 4	Zoology 2
Saturday			Physics 2	German 4	

†These periods are transposed from December 1 to March 31.

AGRICULTURAL COURSE—JUNIOR YEAR.

Day	8-9	9-10	10-11	11-12	P. M.
Monday	*Horticulture 8	Forestry 1		Military Sci. 5	Zoology 3 Botany 3
Tuesday	Chemistry 7	Forestry 1		Agronomy 1	Horticulture 4
Wednesday	Chemistry 7	Dairying 1	Zoology 3 Botany 3	Horticulture 4	Forestry 1
Thursday	Dairying 1	Dairying 1	Dairying 1	Agronomy 1	Zoology 3 Botany 3
Friday	*Horticulture 8	Dairying 1	Zoology 3 Botany 3	Military Sci. 5	Agronomy 1
Saturday	Dairying 1	Dairying 1	Dairying 1	Military Sci. 13	

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday	*Horticulture 5	*Horticulture 5	Geology 2	Military Sci. 6	Agronomy 2
Tuesday	*Horticulture 7 *Animal Husb. 6	Political Sci. 1	*Animal Husb. 4	Agronomy 2	*Botany 4 or 5 *Dairying 3 *Zoology 4 or 5
Wednesday	*Botany 4 or 5	*Botany 4 or 5	Animal Husb. 3	Agronomy 2	*Animal Husb. 6 *Horticulture 7 *Zoology 4 or 5
Thursday	*Horticulture 7 *Animal Husb. 6	Political Sci. 1	Animal Husb. 3	Geology 2	Geology 2
Friday	*Horticulture 5	*Horticulture 5 *Dairying 3	*Animal Husb. 4 *Botany 4 or 5 *Animal Husb. 4	Military Sci. 6	Animal Husb. 3
Saturday		Political Sci. 1	*Zoology 4 or 5	Military Sci. 14	

SECOND SEMESTER

For hours of courses not scheduled, see instructor.
*Elective.

AGRICULTURAL COURSE—SENIOR YEAR.

FIRST SEMESTER						SECOND SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.	Day	8-9	9-10	10-11	11-12	P. M.
Monday	*Zoology 6	*Animal Husb. 7 *Animal Husb. 7	*Dairying 6 *Horticulture 9	*Horticulture 11	*Agronomy 3	Monday	*Horticulture 10	Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	History 6	*Agronomy 4	*Botany 5
Tuesday	Zoology 8	Meteorology 1	History 5 *Dairying 6 *Horticulture 9	*Horticulture 11	Agronomy 5	Tuesday	*Horticulture 6	Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	English 6	*Animal Husb. 2	*Animal Husb. 5
Wednesday						Wednesday	*Horticulture 10	Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	History 6	*Animal Husb. 2	*Botany 5
Thursday	Zoology 8	*Botany 5	History 5	*Animal Husb. 7	*Agronomy 3 *Horticulture 11	Thursday	*Horticulture 12 or *Horticulture 13	Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	English 6	*Agronomy 4	*Horticulture 6
Friday		Meteorology 1	*Botany 5	*Horticulture 11	*Horticulture 9 *Zoology 6	Friday		*Animal Husb. 5 *Horticulture 12 or *Horticulture 13	History 6		
Saturday	Zoology 8		History 5			Saturday	*Horticulture 12 or *Horticulture 13	*Botany 5	English 6		

*Elective.

For hours of courses not scheduled see instructor.

ENGINEERING COURSES—FRESHMAN YEAR.

FIRST DIVISION.

FIRST SEMESTER				11-12		P. M.
Day	8-9	9-10	10-11			
Monday		English 1	Chemistry 1	Military Sci. 1		Shop Work 1
Tuesday	German 1	French 1	Military Sci. 9 (Sec. 1)	Mathematics 1		Shop Work 1
Wednesday		English 1	Chemistry 1	Mathematics 1		Drawing 1 Shop Work 1
Thursday	German 1	French 1	Mathematics 1	Mathematics 1		Drawing 1
Friday		English 1	Chemistry 1	Military Sci. 1		Drawing 1
Saturday	German 1	French 1	Mathematics 1	Mathematics 1		

SECOND SEMESTER				11-12		P. M.
Day	8-9	9-10	10-11			
Monday	German 2	English 2	Chemistry 2	Military Sci. 2		Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Tuesday	Drawing 2	French 2 Drawing 2	Mathematics 3 (First ten weeks)	Military Sci. 10 (1st sec.)		Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Wednesday	German 2	English 2	Mathematics 3 (First ten weeks)	Military Sci. 10 (2d sec.)		Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Thursday	Drawing 2	French 2 Drawing 2	Mathematics 3 (First ten weeks) Drawing 2 (Last seven weeks)	Mathematics 3 (First ten weeks) Drawing 2 (Last seven weeks)		Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Friday	German 2	English 2	Chemistry 2	Military Sci. 2		Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)
Saturday	Drawing 2	French 2 Drawing 2	Mathematics 3 (First ten weeks) Drawing 2 (Last seven weeks)	Mathematics 3 (First ten weeks) Drawing 2 (Last seven weeks)		Chemistry 4 (First ten weeks) Mathematics 4 (Last seven weeks)

Mathematics 2, First Semester, hours to be arranged.

ENGINEERING COURSES—FRESHMAN YEAR.

SECOND DIVISION.

Day	8-9	9-10	10-11	11-12	P. M.
Monday		Mathematics 1	Chemistry 1	Military Sci. 1	Drawing 1
Tuesday	English 1	French 1 German 1	Mathematics 1	Military Sci. 9 (Sec. 1)	Drawing 1
Wednesday			Chemistry 1	Military Sci. 9 (Sec. 2)	Drawing 1 Shop Work 1
Thursday	English 1	French 1 German 1	Mathematics 1	Mathematics 1	Shop Work 1
Friday		French 1 German 1	Chemistry 1	Military Sci. 1	Shop Work 1
Saturday	English 1		Mathematics 1	Mathematics 1	

FIRST SEMESTER

Monday		Military Sci. 10 (Sec. 1)	Chemistry 2	Military Sci. 2 Mathematics 3 (First ten weeks) Drawing 3 (Last seven weeks)	Drawing 2 (First ten weeks) Mathematics 4 (Last seven weeks)
Tuesday	English 2	French 2 German 2	Drawing 3 (Last seven weeks)		Drawing 2 (First ten weeks) Mathematics 4 (Last seven weeks)
Wednesday	Drawing 2 (First ten weeks)	Drawing 2 (First ten weeks)	Drawing 2 (First ten weeks)	Mathematics 3 (First ten weeks)	Shop Work 2 (First ten weeks) Mathematics 4 (Last seven weeks)
Thursday	English 2	French 2 German 2	Mathematics 3 (First ten weeks) Drawing 3 (Last seven weeks)	Mathematics 3 (First ten weeks) Drawing 3 (Last seven weeks)	Shop Work 2 (First ten weeks) Mathematics 4 (Last seven weeks)
Friday	Drawing 2 (First ten weeks)	Drawing 2 (First ten weeks)	Chemistry 2 Mathematics 3 (First ten weeks) Drawing 3 (Last seven weeks)	Military Sci. 2 Mathematics 3 (First ten weeks) Drawing 3 (Last seven weeks)	Shop Work 2 (First ten weeks) Mathematics 4 (Last seven weeks)
Saturday	English 2	German 2 French 2			

SECOND SEMESTER

Mathematics 2, First Semester, hours to be arranged.

CHEMICAL ENGINEERING COURSE—SOPHOMORE YEAR.

Day	8-9	9-10	10-11	11-12	P. M.
Monday	Chemistry 5 (First five weeks.) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks.) Chemistry 10 (Last twelve weeks)	†Chemistry 5 (First five weeks) †Chemistry 10 (Last twelve weeks)	†Military Sci. 3	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
Tuesday	Mathematics 5		Physics 1	German 3	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
Wednesday	Mathematics 5	Chemistry 5 (First five weeks.) Chemistry 10 (Last twelve weeks.)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
Thursday	Mathematics 5	Mathematics 5	Physics 1	German 3	Drawing 7
Friday	Mathematics 5	Military Sci. 11	†	†Military Sci. 3	Drawing 7
Saturday	Mathematics 5	Mathematics 5	Physics 1	German 3	

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday	Chemistry 6	Military Sci. 12	†	†Military Sci. 4	Chemistry 11
Tuesday	Mathematics 6	Chemistry 6	Physics 2	German 4	Chemistry 11
Wednesday	Mathematics 6	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
Thursday	Mathematics 6	Chemistry 6	Physics 2	German 4	Chemistry 11
Friday	Mathematics 6	Mathematics 6	†	†Military Sci. 4	Chemistry 11
Saturday	Mathematics 6	Mathematics 6	Physics 2	German 4	

SECOND SEMESTER

†These periods are transposed from December 1 to March 31.

CHEMICAL ENGINEERING COURSE—JUNIOR YEAR.

Day	8-9	9-10	10-11	11-12	P. M.
Monday	Chemistry 8	Chemistry 19	Machine Design 3	Military Sci. 5	Chemistry 12
Tuesday	Chemistry 7	Chemistry 12	Chemistry 21	Chemistry 12	Chemistry 12
Wednesday	Chemistry 7	Chemistry 19	Machine Design 3		Chemistry 12
Thursday	Machine Design 3		Chemistry 21	Chemistry 12	Chemistry 8
Friday	Chemistry 12	Chemistry 12	Chemistry 12	Military Sci. 5	Chemistry 8
Saturday		Machine Design 3		Military Sci. 13	

FIRST SEMESTER

Monday	Geology 1	Geology 1	Machine Design 5	Military Sci. 6 Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 13
Tuesday	Machine Design 5		Chemistry 20		Chemistry 13
Wednesday	Machine Design 5	Chemistry 13	Chemistry 13	Chemistry 13 Chemistry 14 Chemistry 15 Chemistry 22	Physics 6
Thursday	Chemistry 13	Chemistry 13	Chemistry 20		Physics 6
Friday	Geology 1	Geology 1		Military Sci. 6 Chemistry 14 Chemistry 15 Chemistry 22	Physics 6
Saturday	Chemistry 13	Chemistry 13	Machine Design 5	Military Sci. 14	

SECOND SEMESTER

CHEMICAL ENGINEERING COURSE—SENIOR YEAR.

Day	8-9	9-10	10-11	11-12	P. M.
Monday	Elect. Eng. 21	Chemistry 23	Chemistry 23	Chemistry 23	Chemistry 23
Tuesday	Elect. Eng. 21	Elect. Eng. 21	Chemistry 21		Chemistry 23
Wednesday	Shop Work 15	Shop Work 15	Shop Work 15	Mech. Eng. 7	Chemistry 23
Thursday	Chemistry 23	Chemistry 23	Chemistry 21	Chemistry 23	Chemistry 23
Friday	Elect. Eng. 21	Mech. Eng. 7	Chemistry 23	Chemistry 23	Chemistry 23
Saturday	Mech. Eng. 7	Chemistry 16	Chemistry 16	Chemistry 16	

FIRST SEMESTER

Monday	Chemistry 24	Chemistry 24	Chemistry 24	Chemistry 24	Chemistry 24
Tuesday	Political Sci. 1	Elect. Eng. 22	English 6	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 24
Wednesday	Elect. Eng. 22	Elect. Eng. 22	Chemistry 24	Chemistry 24	Chemistry 24
Thursday	Political Sci. 1		English 6	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 24
Friday	Elect. Eng. 22	Chemistry 24	Chemistry 24	Chemistry 24	Chemistry 24
Saturday	Political Sci. 1		English 6	Chemistry 14 Chemistry 15 Chemistry 22	

SECOND SEMESTER

ELECTRICAL AND MECHANICAL ENGINEERING COURSES—SOPHOMORE YEAR.

FIRST SEMESTER					P. M.	
Day	8-9	9-10	10-11	11-12		
Monday	Machine Design 1	Military Sci. 11	†	†Military Sci. 3	Chemistry 4	Shop Work 3
Tuesday	Mathematics 5		Physics 1	German 3	Chemistry 4	Shop Work 3
Wednesday	Mathematics 5	Machine Design 1			Drawing 5	(Div. 1) (1st 7 wks.)
Thursday	Mathematics 5	Mathematics 5	Physics 1	German 3	Chemistry 4	Drawing 5
Friday	Mathematics 5		†Machine Design 1	†Military Sci. 3	(Div. 1) (1st 7 wks.)	Drawing 6
Saturday	Mathematics 5	Mathematics 5	Physics 1	German 3	(Div. 1) (1st 7 wks.)	Drawing 6

SECOND SEMESTER						
Day	8-9	9-10	10-11	11-12		
Monday	Machine Design 2 (First ten weeks) Mech. Eng. 1 (Last seven weeks)		†	†Military Sci. 4	Shop Work 4	
Tuesday	Mathematics 6	Machine Design 2 (First ten weeks) Mech. Eng. 1 (Last seven weeks)	Physics 2	German 4	Shop Work 4	
Wednesday	Mathematics 6		Military Sci. 12		Drawing 8	Shop Work 4
Thursday	Mathematics 6		Physics 2	German 4	Drawing 8	
Friday	Mathematics 6	Mathematics 6	†Machine Design 2 (First ten weeks) †Mech. Eng. 1 (Last seven weeks)	†Military Sci. 4	Drawing 8	
Saturday	Mathematics 6	Mathematics 6	Physics 2	German 4	Drawing 8	

†These periods are transposed from December 1 to March 31.

ELECTRICAL ENGINEERING COURSE—JUNIOR YEAR.

AND THE MECHANIC ARTS.

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Day	8-9	9-10	10-11	11-12	P. M.
Monday		Elect. Eng. 1	Machine Design 3	Military Sci. 5	Physics 3 Physics 4
Tuesday	Machine Design 4	Machine Design 4	Machine Design 4	Machine Design 4	Physics 3 Physics 4
Wednesday	Machine Design 4	Elect. Eng. 1	Machine Design 3	Mech. Eng. 7	Shop Work 9
Thursday	Machine Design 3	Machine Design 4	Machine Design 4	Machine Design 4	Machine Design 4
Friday	Machine Design 4	Mech. Eng. 7	Elect. Eng. 1	Military Sci. 5	Mech. Eng. 9
Saturday	Mech. Eng. 7	Machine Design 3	Mech. Eng. 9	Military Sci. 13	

FIRST SEMESTER

Monday		Elect. Eng. 2	Machine Design 5	Military Sci. 6	Elect. Eng 4
Tuesday	Machine Design 5	Shop Work 10	Shop Work 10	Shop Work 10	Mech. Eng. 10
Wednesday	Machine Design 5	Elect. Eng. 2	Mech. Eng. 8		Physics 5
Thursday	Elect. Eng. 4		Elect. Eng. 6	Mech. Eng. 8	Physics 5
Friday	Mech. Eng. 10	Mech. Eng. 8	Elect. Eng. 2	Military Sci. 6	Physics 5
Saturday			Machine Design 5	Military Sci. 14	

SECOND SEMESTER

ELECTRICAL ENGINEERING COURSE—SENIOR YEAR.

Day	8-9	9-10	10-11	11-12	P. M.
Monday	Elect. Eng. 15		Mech. Eng. 11	Military Sci. 7	Mech. Eng. 13
Tuesday	Mech. Eng. 12		Elect. Eng. 13		Elect. Eng. 15
Wednesday		Mech. Eng. 11	Elect. Eng. 11	Mech. Eng. 13	
Thursday	Mech. Eng. 12	Elect. Eng. 11	Mech. Eng. 11	Elect. Eng. 13	
Friday			Mech. Eng. 11	Military Sci. 7	Elect. Eng. 15
Saturday	Mech. Eng. 12	Elect. Eng. 11		Military Sci. 15	

FIRST SEMESTER

Monday	Mech. Eng. 19	Elect. Eng. 12		Military Sci. 8	
Tuesday	Political Sci. 1		Mech. Eng. 14		Elect. Eng. 16
Wednesday			Elect. Eng. 12	Mech. Eng. 19	Mech. Eng. 14
Thursday	Political Sci. 1	Elect. Eng. 12			Elect. Eng. 16
Friday		Elect. Eng. 12	Mech. Eng. 19	Military Sci. 8	
Saturday	Political Sci. 1			Military Sci. 16	

SECOND SEMESTER

MECHANICAL ENGINEERING COURSE—JUNIOR YEAR.

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday		Elect. Eng. 1	Machine Design 3	Military Sci. 5	Physics 3 Physics 4
Tuesday	Machine Design 4	Machine Design 4	Machine Design 4	Machine Design 4	Physics 3 Physics 4
Wednesday	Machine Design 4	Elect. Eng. 1	Machine Design 3	Mech. Eng. 7	Shop Work 9
Thursday	Machine Design 3	Machine Design 4	Machine Design 4	Machine Design 4	Machine Design 4
Friday	Machine Design 4	Mech. Eng. 7	Elect. Eng. 1	Military Sci. 5	Mech. Eng. 9
Saturday	Mech. Eng. 7	Machine Design 3	Mech. Eng. 9	Military Sci. 13	
SECOND SEMESTER					
Monday		Elect. Eng. 2	Machine Design 5	Military Sci. 6	Machine Design 6
Tuesday	Machine Design 5	Shop Work 10	Shop Work 10	Shop Work 10	Mech. Eng. 10
Wednesday	Machine Design 5	Elect. Eng. 2	Mech. Eng. 8	Machine Design 6	Physics 5
Thursday	Machine Design 6	Machine Design 6	Machine Design 6	Mech. Eng. 8	Physics 5
Friday	Mech. Eng. 10	Mech. Eng. 8	Elect. Eng. 2	Military Sci. 6	Physics 5
Saturday	Machine Design 6	Machine Design 6	Machine Design 5	Military Sci. 14	

MECHANICAL ENGINEERING COURSE—SENIOR YEAR.

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday	Mech. Eng. 15	Elect. Eng. 19	Mech. Eng. 11	Military Sci. 7	Mech. Eng. 13
Tuesday	Mech. Eng. 12	Mech. Eng. 15	Mech. Eng. 15	Mech. Eng. 15	
Wednesday	Mech. Eng. 15	Mech. Eng. 11	Elect. Eng. 19	Mech. Eng. 13	Mech. Eng. 15
Thursday	Mech. Eng. 12		Mech. Eng. 11		Elect. Eng. 17
Friday		Elect. Eng. 19	Mech. Eng. 11	Military Sci. 7	
Saturday	Mech. Eng. 12	Mech. Eng. 15	Mech. Eng. 15	Mech. Eng. 15	
SECOND SEMESTER					
Monday	Mech. Eng. 19		Elect. Eng. 20	Military Sci. 8	Thesis
Tuesday	Political Sci. 1	Mech. Eng. 17	Mech. Eng. 14		Thesis
Wednesday	Elect. Eng. 20	Mech. Eng. 16		Mech. Eng. 19	Mech. Eng. 14
Thursday	Political Sci. 1	Thesis	Thesis	Thesis	Mech. Eng. 16
Friday		Mech. Eng. 16	Mech. Eng. 19	Military Sci. 8	Mech. Eng. 16
Saturday	Political Sci. 1	Mech. Eng. 17			

GENERAL COURSE—FRESHMAN YEAR.

Day	8-9	9-10	10-11	11-12	P. M.
Monday		Mathematics 1	Chemistry 1	Military Sci. 1	*Drawing 1
Tuesday	English 1	French 1 German 1	Mathematics 1	Military Sci. 9	*Drawing 1
Wednesday		History 1 or History 3	Chemistry 1		*Shop Work 1
Thursday	English 1	French 1 German 1	Mathematics 1	Mathematics 1	History 1 or History 3
Friday		History 1 or History 3	Chemistry 1	Military Sci. 1	*Shop Work 1
Saturday	English 1	French 1 German 1	Mathematics 1	Mathematics 1	

FIRST SEMESTER

Monday	Military Sci. 10	*Philosophy 2	Chemistry 2	Military Sci. 2	Drawing 16 (Last seven weeks) Mathematics 4 (Last seven weeks)
Tuesday	English 2	French 2 German 2		Mathematics 3 (First ten weeks)	Drawing 16 (Last seven weeks) Mathematics 4 (Last seven weeks)
Wednesday		History 2 or History 4	*Philosophy 2	Mathematics 3 (First ten weeks)	Drawing 16 (Last seven weeks) Mathematics 4 (Last seven weeks)
Thursday	English 2	French 2 German 2	Mathematics 3 (First ten weeks)	Mathematics 3 (First ten weeks)	History 2 or History 4
Friday		History 2 or History 4	Chemistry 2	Military Sci. 2	Drawing 16 (Last seven weeks) Mathematics 4 (Last seven weeks)
Saturday	English 2	French 2 German 2	Mathematics 3 (First ten weeks)	Mathematics 3 (First ten weeks)	

SECOND SEMESTER

*Elective.

Mathematics 2, First Semester, hours to be arranged.

GENERAL COURSE—SOPHOMORE YEAR.

Day	8-9	9-10	10-11	11-12	P. M.
Monday	†Zoology 6	Military Sci. 11 †Zoology 1 †Zoology 6	††Botany 1 *Philosophy 1 *Physics 1	†Military Sci. 3	*Chemistry 4
Tuesday	*Mathematics 5	*History 1 *History 3	†Botany 1	German 3	*Chemistry 4
Wednesday	*Mathematics 5 †Zoology 1	†Zoology 1	*Philosophy 1 *Physics 1	†Botany 1	*Chemistry 4 *History 1
Thursday	*Mathematics 5	*History 1 or *History 3	†	German 3	*History 3 †Zoology 1
Friday	*Mathematics 5 †Botany 1	*Mathematics 5 †Botany 1	*Philosophy 1 *Physics 1	†Military Sci. 3	†Zoology 6
Saturday				German 3	

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday		†Zoology 2	††Botany 2 English 6 *Physics 2	†Military Sci. 4	†Botany 2 †Zoology 5
Tuesday	*Mathematics 6	Political Sci. 1 *History 2 *History 4	Military Sci. 12 English 6 *Physics 2	German 4	†Botany 2 †Zoology 5
Wednesday	*Mathematics 6	Political Sci. 1 *History 2 *History 4	†Zoology 2 English 6 *Physics 2	German 4	*History 2 *History 4
Thursday	*Mathematics 6	Political Sci. 1	†Zoology 2	†Military Sci. 4	†Zoology 2
Friday	*Mathematics 6	Political Sci. 1	English 6 *Physics 2 †Zoology 5	German 4	
Saturday	*Mathematics 6	Political Sci. 1			

SECOND SEMESTER

†These periods are transposed from December 1 to March 31.

†Students are required to select for 1st Semester, Zoology 1 or 6, or Botany 1, and for 2nd Semester, Zoology 2 or 5, or Botany 2
*Elective.

GENERAL COURSE—JUNIOR YEAR.

FIRST SEMESTER					SECOND SEMESTER						
Day	8-9	9-10	10-11	11-12	P. M.	Day	8-9	9-10	10-11	11-12	P. M.
Monday	Zoology 6	French 3	English 3	Philosophy 4 Military Sci. 5	Botany 3 Chemistry 4 Spanish 1 Zoology 3	Monday	Chemistry 6 Geology 1	French 4 Mathematics 9	Geology 2 History 6	Philosophy 5 Military Sci. 6	Spanish 2
Tuesday	Zoology 8	Political Sci. 2 Zoology 6	History 5		Chemistry 4 Spanish 1 Zoology 4	Tuesday		Chemistry 6 Philosophy 3	English 6	Political Sci. 4 Political Sci. 5	English 4 Geology 2
Wednesday		French 3	Botany 3 Zoology 3	Philosophy 4 English 3	Botany 3 Zoology 3 Zoology 6	Wednesday	Geology 1	French 4	History 6	Philosophy 5 Military Sci. 6	English 4
Thursday	Zoology 8	Political Sci. 2	History 5		English 3	Thursday					
Friday		French 3	Botany 3 Zoology 3	Philosophy 4 Military Sci. 5		Friday					
Saturday	Zoology 8	Political Sci. 2	History 5	Military Sci. 13		Saturday		Philosophy 3	English 6		

For hours of courses not scheduled, see instructor.

All elective.

GENERAL COURSE—SENIOR YEAR.

FIRST SEMESTER						SECOND SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.	Day	8-9	9-10	10-11	11-12	P. M.
Monday	German 5	Zoology 6 Philosophy 6	French 5	Philosophy 4 Political Sci. 3	Botany 6 History 7 Spanish 1	Monday	German 6	Mathematics 9	French 6	Philosophy 5 English 7	Spanish 2
Tuesday	English 5 Zoology 8	Political Sci. 2 Zoology 6	French 9 Philosophy 1	Political Sci. 4 or Political Sci. 5	English 4 Spanish 2	Tuesday		Philosophy 3	French 10	Philosophy 5 English 7	Spanish 2
Wednesday	German 5	Philosophy 6 Meteorology 1	Botany 6 French 5 French 9 German 9 Philosophy 1	Geology 2 Political Sci. 4 or Political Sci. 5	English 4 Geology 2 English 4 English 7	Wednesday	German 6	Mathematics 9	French 6	Philosophy 5 English 7	Spanish 2
Thursday	English 5	Zoology 8 Political Sci. 2	German 9 Philosophy 1	Philosophy 4 Political Sci. 3	Zoology 6 Botany 6 History 7	Thursday		Philosophy 3	German 10 French 10	Philosophy 5 English 7	English 4 Geology 2 English 4 English 7
Friday	German 5 English 5 Zoology 8	Philosophy 6 Meteorology 1	French 5 German 9 Philosophy 1	Philosophy 4 Political Sci. 3		Friday	German 6		French 6	Philosophy 5 English 7	
Saturday		Political Sci. 2	German 9 Philosophy 1	Philosophy 4 Political Sci. 3		Saturday		Philosophy 3	German 10	Philosophy 5 Political Sci. 4 or Political Sci. 5	

For hours of courses not scheduled, see instructor.
All elective.

TWO YEAR COURSE IN AGRICULTURE.

This course was established by the state legislature in 1895, and provides an opportunity for those students to secure a training for their life work who do not have the time, money or preparation to take a four year college course.

The course is especially arranged and suited for the young, bright boys of the farm, who expect to make a business of some line of agricultural or horticultural work. Although it is open to students who have had no previous training on the farm, the entrance of such is not encouraged because of their lack of practical experience. By independent work and close application, however, inexperienced students sometimes pass the course with credit.

Three new and important changes in the course have been made this year. The first is the shortening of the school year from thirty-five to thirty weeks. This change is made for the purpose of having the students complete their year's work about the last of April so as to be able to go home for the spring work on the farm or to accept salaried positions for the summer. It also permits of more than four months' time for those students who are dependent upon their own resources to earn money for the following year. The second change is the separation of the two and four year classes all the way through the course. This separation has not heretofore been made in most of the agricultural and horticultural subjects, but with an increased teaching force in these two departments for the coming year, it is made complete. The making of the classes separate and distinct makes it possible to plan and give the work of the two year course in a manner best suited to the needs of its students. In short, the course has been made just as practical as possible. The third change is the division of the year into two terms instead of three. The first term will be eighteen weeks in length and the second twelve.

The work of the first year is largely preparatory, being a study of the sciences underlying agriculture, together with some elementary agricultural and horticultural work. The second year contains optional studies so that it is possible for students to specialize in animal industry, dairying, forestry or greenhouse work. Ten hours per week on the average are spent in practical work on the farm, in the barn, greenhouses or shops.

ADMISSION.

The course is open to those who can pass a fair and reasonable examination in reading, spelling, writing, arithmetic, English grammar, geography and history of the United States. Applicants, unless over eighteen years of age, who do not bring high school or other satisfactory certificates to show their proficiency in these subjects, will be given an entrance examination on Tuesday afternoon and Wednesday morning of the opening week of school. Applicants who are over eighteen years of age will be admitted without examination.

OPENING.

The course for the year will open Wednesday, September 17, 1908, and close Wednesday, May 5, 1909. A Christmas vacation of two weeks and a spring vacation of five days will be given.

EXPENSES.

The expenses of the course will vary with the tastes and frugality of the students and the kind of accommodations which they secure. The total average expense for the year is not far from \$250. Many students by working for their board or room rent, or by doing various kinds of work about the college or village, are able to go through the year with a cash outlay not exceeding \$150.

CERTIFICATES.

No degree is given at the end of the course, but a certificate of graduation is issued upon the completion of it or its equivalent.

DESCRIPTION OF STUDIES.

AGRONOMY.

31. Elementary Agriculture.

Text-book and recitations upon the elementary principles of Agriculture, including a study of the soil, the plant and the animal, and their relations to each other; also a brief study of the different breeds of livestock, their breeding and feeding. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

32. Farm Equipment and Farm Crops.

This course is similar to Agronomy 1, although less detailed. For Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

33. Soils and Soil Physics.

This course is similar to Agronomy 2, but involves less mathematics and physics. For Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

34. Manures and Fertilizers.

Text-book and recitations upon the constituents of farm manures, and chemical fertilizers, the care and application of manures, the mixture of fertilizers and the modifications required by different soils and crops. For Two Year Agricultural Students, Second Year.

Two exercises per week. 2nd S.

ANIMAL HUSBANDRY.**31. Breeds of Live Stock.**

Similar to An. Husb. 1. For Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

32. Sheep Raising.

Lectures and recitations upon the breeds of sheep; their adaptability to this section; their care and management; their fitting for the shows and feeding for market purposes; the growing of hot house lambs. Also practical exercises in judging the various breeds. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

33. Feeds and Feeding.

Similar to An. Husb. 3. For Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

34. Animal Breeding.

Similar to An. Husb. 2. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

35. Veterinary.

Similar to An. Husb. 4. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

36. Poultry.

Similar to An. Hus. 5. Elective for Two Year Agricultural Students, Second Year.

Two exercises per week. 2nd S.

BOTANY.

PROF. BROOKS, MR. LEWIS.

31. Elements of Botany.

A general view of the life processes and structure of plants, followed by the study in detail of a few type forms. Recitations and laboratory work. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

32. Plant Diseases.

A study of the more important fungous diseases and their prevention. Lectures, recitations and laboratory work.

Open only to students who have completed Course 1.

Three exercises per week. 2nd S.

CHEMISTRY.

PROF. MORSE.

31. Elementary Applications.

An elementary course, with special reference to the elements of plant food, composition of fertilizers, elements subject to exhaustion in soils, etc. For Two Year Agricultural Students, First Year.

Two exercises per week. 2nd S.

DAIRYING.

ASSOC. PROF. RASMUSSEN.

31. Milk and Milk Testing.

Lectures and recitations on the secretion, composition and properties of milk, the Babcock test and lactometer. Comparative

study of different systems of creaming and different factors influencing the efficiency of the hand separator. For Two Year Agricultural Students, First Year.

Three exercises per week. 2nd S.

32. Butter Making.

This includes pasteurization, commercial starters, cream ripening, churning, marketing and scoring butter. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

33. Technology of Milk.

Same as Course 3. Elective for Two Year Agricultural Students, Second Year.

Two exercises per week. 2nd S.

DRAWING.

31. Two Year Agricultural Students, Second Year.

One exercise per week. 1st S.

ENGLISH.

31. Grammar and Elementary Composition.

For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

32. Grammar and Composition.

This is a continuation of Course 31. For Two Year Agricultural Students, First Year.

Open only to students who have completed Course 31.

Three exercises per week. 2nd S.

FORESTRY.

31. Farm Forestry.

Method of reproduction, seed collecting, thinning, determination of heights, contents and increment of forest trees. For Two Year Agricultural Students, First Year.

Two exercises per week. 2nd S.

32. Arboriculture and Forestry.

Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

HORTICULTURE.**31. Vegetable Gardening.**

A study of the commercial methods of vegetable growing. Special attention is given to the home garden. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

32. Fruit Growing.

This course embraces a study of commercial orcharding; each fruit being studied with reference to planting, cultivating, pruning, fertilizing, picking, packing, storing and marketing. For Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

33. Plant Growth and Greenhouse.

Combined lecture, demonstration and laboratory course in plant growth and greenhouse management. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

34. Home Decoration.

A study of ornamental trees, shrubs and flowers; their culture, proper arrangement and decorative value, with special reference to home surroundings. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2nd S.

MATHEMATICS.

MR. EASTMAN.

31. Arithmetic and Bookkeeping.

For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

MILITARY SCIENCE AND TACTICS.

CAPT. HUNT.

1. Military Drill.

For Two Year Agricultural Students, First Year.

Two exercises per week. 1st S.

2. Military Drill.

For Two Year Agricultural Students, First Year.

Two exercises per week. 2nd S.

3. Military Drill.

For Two Year Agricultural Students, Second Year.

Two exercises per week. 1st S.

4. Military Drill.

For Two Year Agricultural Students, Second Year.

Two exercises per week. 2nd S.

9. Infantry Drill Regulations.

Practical instruction and lectures. For Two Year Agricultural Students, First Year.

One exercise per week. 1st S.

10. Manual of Guard Duty and Small Arms Firing Regulations.

For Two Year Agricultural Students, First Year.

One exercise per week. 2nd S.

17. Lectures on Advance Guards, Outposts, etc.

For Two Year Agricultural Students, Second Year.

One exercise per week. 1st S.

18. Lectures on Advance Guards, Outposts, etc.

Continuation of Course 17. For Two Year Agricultural Students, Second Year.

One exercise per week. 2nd S.

PHYSICS.

PROF. NESBIT.

31. Elementary Physics.

For Two Year Agricultural Students, Second Year.

Four exercises per week. 1st S.

SHOP WORK.**31. Wood Work. Mr. Ingham.**

For Two Year Agricultural Students, First Year.

Two exercises per week. 2nd S.

32. Iron Work. Mr. Brown.

For two Year Agricultural Students, Second Year.

Two exercises per week. 2nd S.

ZOOLOGY.**31. Vertebrate Anatomy and Physiology.**

The anatomy and physiology of the higher vertebrates based upon that of man and with special reference to domestic animals.

Recitations and laboratory dissections and experiments. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

32. Elementary Entomology.

The structure, habits and classification of insects, with special consideration of injurious pests and means of controlling them. For Two Year Agricultural Students, First Year.

Three exercises per week. 2nd S.

COURSES OF STUDY AND SCHEDULE OF HOURS.

First Year.

FIRST SEMESTER.

	Credit hours.
<i>Agronomy 31</i>	Elementary Agriculture 3
<i>Botany 31</i>	Elements of Botany 3
<i>English 31</i>	Grammar and Elementary Composition 3
<i>Horticulture 31</i>	Vegetable Gardening..... 3
<i>Mathematics 31</i>	Mathematics and Bookkeeping... 3
<i>Military Science 1</i>	Drill 1
<i>Military Science 3</i>	Infantry Drill Regulations..... 1
<i>Zoology 31</i>	Vertebrate Anatomy and Physiology 3

SECOND SEMESTER.

<i>Botany 32</i>	Plant Diseases 3
<i>Chemistry 31</i>	Elementary Applications..... 2
<i>Dairying 31</i>	Milk and Milk Testing..... 3
<i>English 32</i>	Grammar and Composition..... 3
<i>Forestry 31</i>	Farm Forestry 2
<i>Military Science 2</i>	Drill 1
<i>Military Science 10</i>	Manual of Guard Duty..... 1
<i>Shop Work 31</i>	Wood Work 2
<i>Zoology 32</i>	Economic Entomology 4

Second Year.

FIRST SEMESTER.

<i>Agronomy 32</i>	Farm Equipment and Farm Crops 3
<i>An. Husb. 31</i>	Breeds of Livestock..... 3

	Credit hours.
<i>*An. Husb. 32</i>	Sheep Raising 3
<i>*Dairying 32</i>	Butter Making 3
<i>Drawing 31</i>	..... 1
<i>Horticulture 32</i>	Fruit Growing 3
<i>*Horticulture 33</i>	Plant Growth and Greenhouse... 3
<i>Military Science 3</i>	Drill 1
<i>Military Science 17</i>	Advance Guards, Outposts, etc... 1
<i>Physics 31</i>	Elementary Physics 4

SECOND SEMESTER.

<i>Agronomy 33</i>	Soils and Soil Physics..... 3
<i>Agronomy 34</i>	Manures and Fertilizers..... 2
<i>An. Husb. 33</i>	Feeds and Feeding 3
<i>*An. Husb. 34</i>	Animal Breeding 3
<i>*An. Husb. 35</i>	Veterinary Science 3
<i>*An. Husb. 36</i>	Poultry 2
<i>*Dairying 33</i>	Technology of Milk 2
<i>*Forestry 32</i>	Arboriculture and Forestry..... 3
<i>Horticulture 34</i>	Home Decoration 3
<i>Military Science 4</i>	Drill 1
<i>Military Science 18</i>	Advance Guards, Outposts, etc... 1
<i>Shop Work 32</i>	Iron Work 2

* Elective. Elect any one or two.

TWO YEAR COURSE IN AGRICULTURE—FIRST YEAR.

FIRST SEMESTER					
DAY	8-9	9-10	10-11	11-12	P. M.
Monday.....	English 31	Agronomy 31	†Mathematics 31	†Military Sci. 1	Horticulture 31
Tuesday.....		Military Sci. 9	Horticulture 31	Botany 31	Zoology 31
Wednesday.....	English 31	Agronomy 31	Mathematics 31	Zoology 31	Botany 31
Thursday.....		Horticulture 31		Zoology 31	
Friday.....	English 31	Agronomy 31	†Mathematics 31	†Military Sci. 1	Botany 31
Saturday.....					
SECOND SEMESTER					
Monday.....	English 32	Chemistry 31	†Forestry 31	†Military Sci. 2.	Botany 32
Tuesday.....	Shop 31	Shop 31	Shop 31	Shop 31	Zoology 32
Wednesday.....	English 32	Chemistry 31		Zoology 32	Forestry 31
Thursday.....	Dairying 31	Dairying 31	Dairying 31	Botany 32	Zoology 32
Friday.....	English 32	Military Sci. 10	†Dairying 31	†Military Sci. 2	Botany 32
Saturday.....	Dairying 31	Dairying 31	Dairying 31	Zoology 32	

†These periods are transposed from December 1 to March 31.

TWO YEAR COURSE IN AGRICULTURE—SECOND YEAR

FIRST SEMESTER					
DAY	8-9	9-10	10-11	11-12	P. M.
Monday	An. Husb. 32 *Horticulture 33	Horticulture 32	†Dairying 32	†Military Sci. 3	An. Husb. 31
Tuesday	*Dairying 32	*Dairying 32	Agronomy 32	Physics 31	*Horticulture 33
Wednesday	*Horticulture 33	Horticulture 32	An. Husb. 31	Physics 31	Agronomy 32
Thursday	*An. Husb. 32	*An. Husb. 32	Agronomy 32	Physics 31	Drawing 31
Friday	Military Sci. 17	*An. Husb. 32	†An. Husb. 31	†Military Sci. 3	Horticulture 32
Saturday	*Dairying 32	*Dairying 32	*Dairying 32	Physics 31	
SECOND SEMESTER					
Monday ...	Agronomy 34	*An. Husb. 35	†Agronomy 33	†Military Sci. 4	*Forestry 32 *An. Husb. 36
Tuesday	Military Sci. 18	*An. Husb. 34	Agronomy 33		*Dairying 33
Wednesday	Agronomy 34	*An. Husb. 35 *Horticulture 34		*Forestry 32	Agronomy 33
Thursday	Shop 32	Shop 32	Shop 32	Shop 32	An. Husb. 33
Friday	An. Husb. 33	*Horticulture 34 *An. Husb. 34	†	†Military Sci. 4	*Horticulture 34 *An. Husb. 35
Saturday	An. Husb. 33	*Dairying 33 *An. Husb. 34	*Dairying 33	*Forestry 32 *An. Husb. 36	

* Elective.

†These periods are transposed from December 1 to March 31.

TEN WEEK COURSE IN DAIRYING OR DAIRY SCHOOL.

OPENING.

The Fourteenth Annual Dairy School of the New Hampshire College opens Tuesday, January 5, and closes Friday, March 13. Students should present themselves for registration at Thompson Hall the first day of the session. Lectures and laboratory work begin the following day.

ADMISSION.

The school is open to men and women sixteen years of age and upward. No entrance examination is required. However, in order to make the best use of the instruction, the student should have a good common school education. The experiences of previous years have shown that the subject in which the student is most deficient is arithmetic, especially percentage and decimals. Both of these divisions of arithmetic are used to a large extent in solving problems in the creamery and also in computing rations for the dairy cow. It is therefore well for those planning to take the dairy course to review these subjects before entering. To be most benefited by the school, the students should have had some practical experience on a farm or in a creamery.

EXPENSES.

A tuition fee of five dollars is payable on registering at the beginning of the term; other expenses, including books, white suits, and room and board for ten weeks, amount to approximately sixty dollars.

CERTIFICATES.

Students completing the required work of the dairy school, and passing satisfactory examinations, will be given certificates.

DESCRIPTION OF SUBJECTS.

Associate Professor W. H. PEW.

Agriculture 42. Breeds of Dairy Cattle.

Lectures and recitations upon the origin, history, distribution, characteristics, adaptability and standard of excellence of the pedigreed breeds of cattle, with special reference to the selection

of breeds and individual animals for the herd. This subject will be studied four hours per week for the first five weeks. The practical work will consist of scoring and judging representatives of the various breeds of dairy cattle, and in tracing pedigrees of animals in the herd books of the different breeds.

Professor FRED W. MORSE.

Agriculture 43. Chemistry of Dairy Products.

The subject is taken up in a course of eight lectures, illustrated by experiments and specimens, and includes the properties and separation of the different constituents of milk, fat, casein, albumen, sugar, etc., the composition of butter and butter-fat, and the properties and effects of preservatives.

Associate Professor W. H. PEW.

Agriculture 44. Diseases of Cattle.

This course will consist of eight lectures and recitations upon the anatomy and physiology of the cow, with special reference to the digestive, reproductive and milk-producing organs. The common diseases, their causes and the methods of treatment will be discussed.

Agriculture 45. Feeds and Feeding.

Lectures and recitations upon the composition and digestibility of feeding stuffs, the preservation of coarse fodders, the making and feeding of ensilage, and the grinding, steaming and cooking of feed. A careful study will be made of the different grains and feeds, and their value in a ration for dairy cows. Practice will be given in computing rations for the dairy cow.

Professor F. W. TAYLOR.

Agriculture 50. Forage and Silage Crops.

This course will consist of ten lectures upon forage and silage crops which are suited for New Hampshire conditions. The matter of varieties, preparation of the ground, time of seeding, amount of seed, harvesting and storing will be discussed. Soiling crops, the construction of silos and the growing of crops for the silo will be treated in as much detail as the time allows.

Associate Professor FRED RASMUSSEN.

Dairying 40. Butter Making.

Lectures and recitations on the different systems of creaming milk and a comparison of the efficiency of different cream separ-

ators under varying conditions; cream ripening, churning, washing, marketing and scoring of butter.

Dairying 41. Dairy Bacteriology.

Lectures and demonstrations on the functions of bacteria and the application of bacteriological principles to dairy work, such as pasteurization, cream ripening, commercial starters, and deterioration of butter.

Dairying 42. Dairy Laboratory.

The equipment in the dairy building is such that the laboratory work can be made applicable both to farm and factory conditions. The student will have an opportunity to study construction and efficiency, and operation of the various machines used in the handling of milk and making of butter. The use of the Babcock test in apportioning the money value of milk is now regulated by state law, and the importance of the test in the successful management of the dairy herd has created a demand for more complete and practical training. The details of the test will be studied carefully, and the student will practice testing milk, cream, skim-milk and butter-milk until fully competent to perform the work for himself or for others.

Dairying 44. Milk and Milk Testing.

This course will consist of the study of secretion, the physical and chemical properties of milk; the production and preparation of sanitary, certified and modified milk, the various methods of sampling and testing milk and cream, and the detection of adulterants and preservatives.

Mechanical Engineering 40. Boilers and Engines.

Lectures will be given on the construction, operation and care of boilers, motors, steam and gasoline engines. The lectures will be followed by practical demonstration and practice in the management of the various motive powers. Instruction and practice will also be given in pipe cutting and fitting, and other work incidental to the management of a steam plant. The course will consist of a two-hour period once a week for the ten weeks.

NEW HAMPSHIRE AGRICULTURAL EXPERIMENT STATION.

Most of the Agricultural Experiment Stations of the various states, including that of New Hampshire were founded in 1888 by an act of Congress, approved March 2, 1887, known as the

Hatch Act in honor of its author. This act appropriated fifteen thousand dollars (\$15,000) annually for the maintenance of an Agricultural Experiment Station in each state. This act provides—

“That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural and artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories.” The act also provides that the results of such work shall be published in bulletins and reports.

A further endowment of the Experiment Stations to provide specifically for research work was made by the Adams Act passed by Congress and approved March 16, 1906, which provided an increased annual appropriation which amounts to \$11,000 for the current fiscal year and increases to \$15,000 in 1911-'12. This appropriation is specifically limited to the “necessary expenses of conducting original researches or experiments,” and the rulings of the U. S. Department of Agriculture, which is vested with the supervision of the expenditures under this act, require that this appropriation be spent in fundamental investigations or researches to determine the underlying causes and principles of agricultural science, rather than for mere experiments to secure results of immediate practical application as contemplated under the Hatch Act Appropriation. The purposes of the two acts are therefore supplementary but distinct.

The New Hampshire Agricultural Experiment Station is organized as a department of the New Hampshire College of Agriculture and Mechanic Arts, and is administered by a Board of Control, elected by its Board of Trustees.

The publications of the station comprise 139 bulletins of the regular series and seven circulars. The bulletins are issued at irregular intervals and are sent to all residents of New Hampshire requesting them. Back numbers will be sent as long as the supply lasts.

The station is prepared to give advice and assistance to the farmers of New Hampshire along the following lines:

The maintenance of soil fertility, including the rotation of crops and the selection and use of manures and fertilizing materials.

The selection of varieties of grains, grasses and forage crops and methods of culture.

The selection of varieties of fruits and vegetables and the management of orchards.

The examination of seeds that are suspected of being unsound or adulterated; the identification of grasses, weeds and other plants; the prevention of fungous diseases of plants.

The identification of insects and the control of such as are injurious.

The feeding of animals, including calculation of rations and use of various feeding stuffs.

The methods of milk production, creamery and dairy methods and machinery and the scoring of dairy products.

The testing of milk to determine the value of dairy cows.

The planting and care of forest trees and the management of farm wood lots.

Any citizen of New Hampshire has the right to apply to the station for such assistance as it can give, and all such requests will be given prompt attention.

COMMENCEMENT 1908.

On Commencement Day, June 3, 1908, the following degrees were conferred:

BACHELORS OF SCIENCE.

Agriculture.

Carlisle, Lawrence A., Exeter.

Farwell, Oren L., Chesham.

Sanborn, Moses H., Fremont.

Waite, George L., Dunbarton.

Chemistry.

Evans, Walter W., E. Kingston.
French, Harry F., Plymouth.
Perley, George A., Goffstown.

Electrical Engineering.

Barton, Arthur Hosea, Newport.
Batchelder, Arthur M., Suncook.
Buss, Minot G., Wilton.
Clough, Francis, Contoocook.
Cone, Charles F., Nashua.
Cory, Merton M., Nashua.
Huse, Merrit C., Concord.
O'Connor, John J., Portsmouth.
Priest, James H., Manchester.
Walker, Harold D., Kittery, Maine.

General.

Chesley, Mary C., Durham.
DeMeritt, Katharine, Durham.
Page, John C., Dover.
Pettee, Sarah E., Durham.

Mechanical Engineering.

Croghan, John T., Concord.
Kirkpatrick, William R., Nashua.
Smalley, Dean F., Walpole.
Tarbell, Carl B., Milton.
Wadleigh, Ray E., Kensington.

Unclassified.

Adams, Waldo L., Townsend, Mass.
Cash, James D., Massabesic.
Hill, Stanley F., Nashua.
Woodman, Francis W., W. Derry.

Certificates.

Holmes, George A., Langdon.
Leavitt, Guy, Sanbornton.
Littlefield, Harold T., Salem Depot.

PRIZE RECORD FOR 1908.**BAILEY PRIZE—\$10.**

GIVEN BY DR. C. H. BAILEY OF THE CLASS OF '79, AND E. A. BAILEY
OF THE CLASS OF '85.

GEORGE ARTHUR PERLEY, Goffstown.

ERSKINE MASON MEMORIAL PRIZE.

GEORGE ARTHUR PERLEY, Goffstown.

**SENIOR STANDING HIGHEST IN THE MILITARY
DEPARTMENT.**

JOHN TIMOTHY CROGHAN, Concord.

**WINNERS OF INDIVIDUAL PRIZE DRILL.
GOLD MEDAL.**

JOHN WORTHEN DAVIS, '11, Concord.

SILVER MEDAL.

CHARLES F. WHITTEMORE, '11, Pembroke.

HONORABLE MENTION.

CHARLES HUBERT LOCKE, '11, Wakefield, Mass.

PRIZE SWORD—EXCELLENCE IN DRILL.

HAROLD HARTSHORN WILKINS, '09, Amherst.

HONORABLE MENTION.

CARL DUNCAN KENNEDY, '09, Concord.

**SENIORS REPORTED TO ADJT.-GENERAL, U. S. ARMY, FOR
APTITUDE IN DRILL.**

JOHN TIMOTHY CROGHAN, Concord.

MERRITT CHASE HUSE, Concord.

HAROLD DUNCAN WALKER, Kittery, Me.

COLOR COMPANY—FALL TERM.

COMPANY B.

VALENTINE SMITH SCHOLARSHIPS.

WILLIAM S. CAMPBELL, '09.

EDWARD D. FRENCH, '10.

EABLE B. JENNINGS, '11.

PHILIP L. GOWEN, '12.

ROSTER OF BATTALION.

For 1908—'09.

COMMANDANT.

CAPTAIN WILLIAM E. HUNT, Twenty-Second U. S. Infantry.

CADET OFFICERS.

MAJOR C. D. KENNEDY.

FIRST LIEUT. AND ADJT. L. S. MORRISON.

FIRST LIEUT. AND Q. M. H. E. WILDER.

SERGT. MAJ. C. S. WRIGHT.

Q. M. SERGT. H. P. CORLISS.

COLOR SERGT. C. E. LAWRENCE.

DRUM MAJOR W. F. LANCELIER.

COMPANY A.

CAPT. H. H. WILKINS,

1ST LT. R. A. NEAL.

2ND LT. J. M. LEONARD.

COMPANY B.

CAPT. L. L. SMALLEY.

1ST LT. C. CHASE.

2ND LT. H. P. CORSON.

COMPANY C.

CAPT. L. A. PRATT.

1ST LT. F. O. CHASE.

2ND LT. A. E. BLAKE.

FIRST SERGEANTS.

E. H. BURROUGHS.

O. F. BRYANT.

H. C. READ.

SERGEANTS.

C. L. PERKINS.

G. B. HEFLER.

C. H. SWAN.

S. T. HOYT.

L. H. BURNS.

D. W. ANDERSON.

W. W. BURROUGHS.

E. D. FRENCH.

H. W. NEAL.

B. W. PROUD.

H. T. CONVERSE.

G. H. CHAMBERLIN.

CORPORALS.

J. H. BACHELDER.

P. J. BURBECK.

R. E. CARPENTER.

L. E. PIERCE.

C. F. WHITTEMORE.

F. G. FISHER.

B. F. PROUD.

L. W. BENNETT.

E. E. STARK.

J. W. DAVIS.

C. W. KEMP.

W. H. QUIMBY.

MUSICIANS.

H. W. TENNEY.

W. D. KIDDER.

D. BOYNTON.

BAND.

1ST LT. J. P. TRICKEY.

SERGEANT C. S. RICHARDSON.

SERGEANT O. D. GOODWIN.

CORPORAL C. W. KELLEY.

SERGEANT P. F. ELLSWORTH.

CORPORAL S. N. WENTWORTH.

SERGEANT J. E. PARKER.

CORPORAL W. MORRILL.

STUDENTS.

a—Agricultural Course; *c*—Course in Technical Chemistry; *g*—General Course; *m e*—Mechanical Engineering; *e e*—Electrical Engineering; *u*—Unclassified. Freshmen in the Engineering Courses are designated by *e* only.

GRADUATE.

Name.	Residence.
Hayes, Warren Chauncey	<i>Durham.</i>

SENIORS.

Name.	Residence.
Ackerman, Lawrence Day <i>c</i>	<i>Bristol.</i>
Brown, Edna Olive <i>g</i>	<i>Rye Beach.</i>
Campbell, William Smith <i>e e</i>	<i>Litchfield.</i>
Doe, Marion <i>g</i>	<i>Durham.</i>
Ellsworth, Perry Foss <i>e e</i>	<i>Meredith.</i>
Falconer, John Ironside <i>a</i>	<i>Milford.</i>
Fellows, Ernest Roslyn <i>e e</i>	<i>Exeter.</i>
Goodwin, Otis Dana <i>e e</i>	<i>Hollis.</i>
Kelley, Charles William <i>m e</i>	<i>Barnstead.</i>
Kennedy, Carl Duncan <i>c</i>	<i>Concord.</i>
Lougee, Bernard Ayers <i>e e</i>	<i>Pittsfield.</i>
McKone, Frank E. <i>e e</i>	<i>Dover.</i>
Merrill, Maurice David <i>e e</i>	<i>Andover.</i>
Parker, John Edward <i>a</i>	<i>Goffstown.</i>
Peaslee, Albert <i>m e</i>	<i>Gonic.</i>
Pike, Herbert Samuel <i>m e</i>	<i>Lisbon.</i>
Pratt, Lester Albert <i>c</i>	<i>Alton Bay.</i>
Quimby, Harold Wallace <i>m e</i>	<i>Northwood Narrows.</i>
Richardson, Charles Sidney <i>m e</i>	<i>Cornish Center.</i>
Sargent, George Jackman <i>c</i>	<i>Concord.</i>
Smalley, Lee Lawrence <i>m e</i>	<i>Walpole.</i>
Stevens, Ernest Morton <i>m e</i>	<i>Andover.</i>
Stokes, Iva Dorothy <i>g</i>	<i>Epsom.</i>
Townsend, Harry Storrs <i>a</i>	<i>Lebanon.</i>
Wendell, Chester Snell <i>e e</i>	<i>Dover.</i>
Wilder, Howard Erwin <i>m e</i>	<i>Amesbury, Mass.</i>
Wilkins, Harold Hartshorn <i>m e</i>	<i>Amherst.</i>
Woods, Arthur Page <i>m e</i>	<i>Bath.</i>

JUNIORS.

Name.	Residence.
Anderson, David Wadsworth <i>a</i>	<i>Manchester.</i>
Batchelder, Henry Edward <i>m e</i>	<i>Exeter.</i>
Bills, Frank Hartwell <i>e e</i>	<i>Reed's Ferry.</i>
Blake, Alfred Edward <i>c</i>	<i>Nashua.</i>
Boynton, Dalton <i>e e</i>	<i>Little Boar's Head.</i>
Bryant, Orville Frank <i>c</i>	<i>Ashland.</i>
Burroughs, Edgar Herbert <i>m e</i>	<i>Sanbornville.</i>
Burroughs, Wilbur Warren <i>m e</i>	<i>Sanbornville.</i>
Chamberlin, George H. <i>e e</i>	<i>Woodsville.</i>
Chase, Fred Odell <i>m e</i>	<i>Warner.</i>
Converse, Henry <i>a</i>	<i>Amherst.</i>
Corliss, Harry Percival <i>c</i>	<i>Wolfeboro.</i>
Corson, Harry Peach <i>c</i>	<i>Laconia.</i>
Drew, Lucy Abby <i>g</i>	<i>Colebrook.</i>
Emery, Roland Chester <i>e e</i>	<i>Hampton.</i>
French, Edward Daniel <i>e e</i>	<i>So. Hampton.</i>
Hefler, George Burpee, <i>m e</i>	<i>Jackson.</i>
Hoyt, Simes Thurston <i>m e</i>	<i>Newington.</i>
Langelier, Wilfred F. <i>c</i>	<i>Nashua.</i>
Lawrence, Cheney E. <i>m e</i>	<i>Nashua.</i>
Leonard, James Mortimer <i>e e</i>	<i>Woodsville.</i>
Morrison, Leonard S. <i>g</i>	<i>Penacook.</i>
Neal, Haldimand W. <i>e e</i>	<i>Dover.</i>
Neal, Robert A. <i>e e</i>	<i>Dover.</i>
Peel, Charles Edward <i>c</i>	<i>Nashua.</i>
Perkins, Clement Linwood <i>c</i>	<i>Berwick, Me.</i>
Read, Harold Clifford <i>e e</i>	<i>Westport.</i>
Sanborn, Edson Dana <i>a</i>	<i>Fremont.</i>
Scammon, Raymond Brewster <i>m e</i>	<i>Stratham.</i>
Thorp, Theron A. <i>e e</i>	<i>Exeter.</i>
Trickey, John Paul <i>c</i>	<i>Rochester.</i>
Wells, Burleigh Ray <i>e e</i>	<i>Somersworth.</i>
Wood, Chester Loring <i>u</i>	<i>Dudley, Mass.</i>

SOPHOMORES.

Name.	Residence.
Abbott, Harold Vincent <i>m e</i>	<i>Derry.</i>
Arozian, Ohannes A. <i>c</i>	<i>Nashua.</i>
Bachelor, John Hutchins <i>a</i>	<i>Concord.</i>
Bennett, Leland Wilson <i>e e</i>	<i>Laconia.</i>
Brackett, Thomas James <i>a</i>	<i>Greenland.</i>
Brown, Albert H. <i>a</i>	<i>Strafford.</i>
Brown, Charles O. <i>c</i>	<i>Concord.</i>
Burbeck, Perry James <i>e e</i>	<i>Haverhill.</i>
Burns, Lucian H. <i>a</i>	<i>Milford.</i>
Carpenter, Roy Elbert <i>e e</i>	<i>Medford, Mass.</i>
Chase, Carl <i>g</i>	<i>Webster.</i>
Clark, Maurice C. <i>m e</i>	<i>Marlboro.</i>
Colby, Arthur S. <i>a</i>	<i>Tilton.</i>
Cotton, Arthur Clyde <i>g</i>	<i>Alton.</i>
Davis, John Worthen <i>m e</i>	<i>Concord.</i>

Name.	Residence.
DeMerritt, Margaret <i>g</i>	<i>Durham.</i>
Drew, Mariette Alice <i>g</i>	<i>Colebrook.</i>
Easterbrook, Ralph Lewis <i>a</i>	<i>Dudley, Mass.</i>
Fisher, Frank Gordon <i>a</i>	<i>Woburn, Mass.</i>
Gaddas, Sumner Felt <i>e e</i>	<i>Hillsboro.</i>
Gove, Willis Ansel <i>m e</i>	<i>Laconia.</i>
Hammond, Roland Bowman <i>g</i>	<i>Nashua.</i>
Hardy, Harold Elwin <i>a</i>	<i>Hollis.</i>
Hatch, Olive Estelle <i>g</i>	<i>Dover.</i>
Holmes, Harry Wesley <i>e e</i>	<i>Northwood.</i>
Jennings, Earle B. <i>e e</i>	<i>Winchester.</i>
Judkins, Henry Forrest <i>a</i>	<i>Kingston.</i>
Kemp, Charles W. <i>a</i>	<i>Kingston.</i>
Kennedy, Frank Paul <i>g</i>	<i>Dover.</i>
Kidder, Walter Dennis <i>e e</i>	<i>Manchester.</i>
Little, Webb <i>g</i>	<i>Compton.</i>
McLucas, Charles Abraham <i>m e</i>	<i>Nashua.</i>
Morrill, Frank Whitcomb <i>g</i>	<i>Walpole.</i>
Morrill, Winfred <i>m e</i>	<i>Pike.</i>
Nason, Carl Eastman <i>e e</i>	<i>Concord.</i>
Parker, Edward Gookin <i>c</i>	<i>Portsmouth.</i>
Parker, William Folger <i>e e</i>	<i>Goffstown.</i>
Pease, Bret <i>e e</i>	<i>Ashland.</i>
Philbrook, Henry Brown <i>g</i>	<i>No. Hampton.</i>
Pierce, Leonard Emerson <i>e e</i>	<i>Worcester, Mass.</i>
Proud, Benjamin Franklin <i>m e</i>	<i>Manchester.</i>
Proud, Brenton W. <i>e e</i>	<i>Manchester.</i>
Quimby, Waldo Hutchinson <i>e</i>	<i>Concord.</i>
Reynolds, Clearton Howard <i>c</i>	<i>Middletown, N. Y.</i>
Roberts, George Filmore <i>a</i>	<i>Alton.</i>
Robinson, Charles Harrison <i>c</i>	<i>Marlboro.</i>
Scott, Bessie Amanda <i>g</i>	<i>Tyson, Vt.</i>
Stark, Eldon Eugene <i>e e</i>	<i>Haverhill.</i>
Swan, Clyde Henry <i>g</i>	<i>Keene.</i>
Tenney, Harry William <i>e e</i>	<i>Newport.</i>
Towne, Ernest George <i>m e</i>	<i>Thornton.</i>
Tucker, James William <i>g</i>	<i>Concord.</i>
Wentworth, Stephen Neal <i>g</i>	<i>Rochester.</i>
Whittemore, Charles F. <i>c</i>	<i>Pembroke.</i>
Wilkins, Aaron Wallace <i>m e</i>	<i>Amherst.</i>
Wilkins, Carroll Blaisdell <i>g</i>	<i>Nashua.</i>
Wright, Charles Shannon <i>a</i>	<i>Portsmouth.</i>
Wyman, Horace Chester <i>a</i>	<i>Manchester.</i>

FRESHMEN.

Name.	Residence.
Bailey, Thomas Craig <i>e</i>	<i>New Boston.</i>
Batchelder Roy Eugene <i>e</i>	<i>Sugar Hill.</i>
Bates, Everett Heath <i>e</i>	<i>Dudley, Mass.</i>
Berry, George Wesley <i>a</i>	<i>Stratham.</i>
Bradford, Maurice P. <i>e</i>	<i>Derry.</i>
Brown, Milward W. <i>e</i>	<i>Hillsboro.</i>

Name.	Residence.
Buckminster, Paul D. <i>e</i>	<i>Haverhill, Mass.</i>
Bunker, Lewis L. H. <i>e</i>	<i>Durham.</i>
Casci, Alfred J. <i>e</i>	<i>Concord.</i>
Catlin, Harwood B. <i>e</i>	<i>Hill.</i>
Chamberlain, Walter E. <i>a</i>	<i>Sugar Hill.</i>
Chase, Earle H. <i>e</i>	<i>Newport.</i>
Chase, William Hosea <i>e</i>	<i>Newport.</i>
Cole, Florence Viola <i>g</i>	<i>Dover.</i>
Davis, Arthur G. <i>a</i>	<i>Peterboro.</i>
Davison, Frank S. <i>a</i>	<i>Durham.</i>
DeMerritt, Stephen <i>e</i>	<i>Durham.</i>
Donnelly, Edith G. <i>g</i>	<i>Dover.</i>
Drake, George Lincoln <i>e</i>	<i>Antrim.</i>
Duncan, Raymond C. <i>e</i>	<i>Alton.</i>
Eastman, Wesley Edward <i>a</i>	<i>E. Andover.</i>
Foster, Leland S. <i>g</i>	<i>Newport.</i>
Garland, John A. <i>a</i>	<i>Hampstead.</i>
Gowen, Philip Lewis <i>g</i>	<i>Stratham.</i>
Harding, Daniel Pearl <i>g</i>	<i>New Durham.</i>
Hargraves, Fred Forest <i>e</i>	<i>Nashua.</i>
Hayes, Bernice M. <i>g</i>	<i>Durham.</i>
Hoben, Frank M. <i>c</i>	<i>Concord.</i>
Holden, H. Chester <i>e</i>	<i>Manchester.</i>
Hood, Leslie Newton <i>g</i>	<i>Nashua.</i>
Hooke, Lyman S. <i>a</i>	<i>Fremont.</i>
Huse, Oscar E. <i>a</i>	<i>Newton Junction.</i>
Johnson, Maurice Lingard <i>g</i>	<i>Nashua.</i>
Knight, Ray H. <i>a</i>	<i>Marlboro.</i>
Leighton, Alan <i>g</i>	<i>Concord.</i>
Leighton, Arthur John <i>e</i>	<i>Laconia.</i>
Lovell, Roscoe Ernest <i>e</i>	<i>Portsmouth.</i>
Lowd, Clarence Mortimer <i>e</i>	<i>Clinton, Mass.</i>
McPheters, George A. <i>e</i>	<i>Portsmouth.</i>
Manter, Jerauld A. <i>e</i>	<i>Manchester.</i>
Merrill, Karl E. <i>e</i>	<i>Hudson.</i>
Morgan, Ralph Clifford <i>e</i>	<i>Concord.</i>
Neal, Cecil Maurice <i>e</i>	<i>Portsmouth.</i>
O'Malley, Michael J. <i>e</i>	<i>Somersworth.</i>
Page, William E. <i>e</i>	<i>Haverhill.</i>
Parker, Harry Stinson <i>e</i>	<i>Goffstown.</i>
Payne, Chauncey W. <i>e</i>	<i>Hill.</i>
Perkins, Harold Wilbur <i>e</i>	<i>Dover.</i>
Perkins, Irving C. <i>e</i>	<i>Kennebunkport, Me.</i>
Pettingill, James B. <i>e</i>	<i>Dover.</i>
Phillips, Paul Milton <i>a</i>	<i>Nashua.</i>
Reynolds, Roland E. <i>g</i>	<i>W. Upton, Mass.</i>
Riley, Martin E. <i>g</i>	<i>Somersworth.</i>
Robinson, John E. <i>e</i>	<i>Pembroke.</i>
Rogers, William Edward <i>e</i>	<i>Medford, Mass.</i>
Sawyer, Arthur H. <i>a</i>	<i>Atkinson.</i>
Sawyer, Howard Symmes <i>e</i>	<i>Woodstock.</i>
Scott, Charles Field <i>g</i>	<i>Durham.</i>

Name.	Residence.
Shapleigh, Edward Eugene <i>e</i>	<i>Kittery, Me.</i>
Shaw, Wyman Robinson <i>u</i>	<i>Strafford.</i>
Skinner, Russell E. <i>a</i>	<i>Colebrook.</i>
Smart, Guy <i>e</i>	<i>Rochester.</i>
Stevens, Ernest C. <i>a</i>	<i>Buffalo, N. Y.</i>
Sughrue, Timothy G. <i>g</i>	<i>Nashua.</i>
Tappan, Albert D. <i>e</i>	<i>North Woodstock.</i>
Taylor, Alexander <i>a</i>	<i>Bedford.</i>
Thompson, Ruth E. <i>g</i>	<i>Durham.</i>
Towle George Wesley <i>e</i>	<i>Newmarket.</i>
Tucker, Herbert R. <i>g</i>	<i>Concord.</i>
Tucker, Raymond Hodgdon <i>e</i>	<i>Berlin.</i>
Tuttle, Harry Benjamin <i>a</i>	<i>Atkinson.</i>
Waldron, Jeremy R. <i>e</i>	<i>Farmington.</i>
Warner, William Pearl <i>e</i>	<i>Plaistow.</i>
Watson, Myles S. <i>a</i>	<i>Durham.</i>
Whittemore, Hollie L. <i>e</i>	<i>Colebrook.</i>
Wood, Arthur G. <i>e</i>	<i>Atkinson.</i>

TWO YEAR COURSE.

Second Year.

Name.	Residence.
Colburn, Luther Dodge	<i>New Boston.</i>
Barber, Frank W.	<i>Durham.</i>
Hill, Claudian F.	<i>Wakefield.</i>
Martin, Leslie Chapin	<i>Chicopee, Mass.</i>
Melkonian, James	<i>Alton.</i>
Townsend, Hugh	<i>Lebanon.</i>
Waite, Iru Merrill	<i>Goffstown.</i>
Wheeler, Harry F.	<i>Salem Depot.</i>

First Year.

Avery, Walter J.	<i>Laconia.</i>
Benner, Andrew W.	<i>Gonic.</i>
Bickford, Channing M.	<i>Rye Beach.</i>
Buffum, Warren Hodgdon	<i>Winchester.</i>
Gilman, Daniel E.	<i>Exeter.</i>
Harvey, Vernon C.	<i>Antrim.</i>
Hill, Ernest C.	<i>Strafford.</i>
Osgood, Wilfred Albro	<i>Windham Depot.</i>
Sanborn, Howard W.	<i>Sanbornton.</i>
Silver, Bertram E. G.	<i>Roxbury, Mass.</i>
Snow, Percy S.	<i>Nashua.</i>
Stevens, Henry L.	<i>Franklin.</i>
Wallis, William E., Jr.	<i>Littleton.</i>
Wheeler, Earle O.	<i>Weirs.</i>
Williams, Everett C.	<i>Worcester, Mass.</i>
Wiswell, Everett	<i>Colebrook.</i>
Woods, Minot W.	<i>Bath.</i>

SPECIAL COURSE.

Name.	Residence.
Abbott, Walter Sidney	<i>Manchester.</i>
Thomas, Edna	<i>Thomaston, Conn.</i>

TEN WEEK COURSE.

Brown, Perley William	<i>Chester, Vt.</i>
Cady, Burton Frederic	<i>Medford, Mass.</i>
Crockett, Henry Charles	<i>New London.</i>
Lane, Oliver Martin	<i>Keene.</i>
Rollins, Herbert William	<i>Concord.</i>
Stevens, Henry Lee	<i>Franklin.</i>
Wheeler, William John	<i>Antrim.</i>
Woodbury, F. P.	<i>Newburyport, Mass.</i>

SUMMARY.

Graduate	1
Seniors	28
Juniors	33
Sophomores	58
Freshmen	76
Students in Ten Week Course.....	8
Students in Two Year Course.....	25
Special Students	2
<hr/>	
Total	231

REGISTER OF GRADUATES

NOTE.—The arrangement is: (a) Name in full. (b) Later degrees taken. (c) Residence at time of entering college. (d) Occupation, etc. (e) Present residence. *Dead. †Present address unknown. Graduates are earnestly requested to inform the registrar of any changes that should be made in this list.

DOCTOR OF SCIENCE.

Ned Dearborn, D. Sc., 1901. Asst. Curator of Birds, Field Museum of Natural History. *Chicago, Ill.*

MASTER OF SCIENCE.

Albert Conradi, M. S., 1902. B. Sc., (Ag.) O. S. U., 1901. Prof. of Zoology and Entomology, Clemson Agricultural College, *Clemson, S. C.*

John L. Randall, M. S., 1906. See class of 1905.

William O. Robinson, M. S., 1906. See class of 1905

Lewis H. Kenney, M. E., 1906. See class of 1899.

John D. Clark, M. S., 1907. See class of 1906.

BACHELORS OF SCIENCE.

1871.

William Preston Ballard, Concord. Farmer.

R. F. D., Route 1, Concord.

Lewis Perkins. Hampton. Retired.

*Hampton.*Charles Henry Sanders, Penacook. Merchant. *Main St., Penacook.*

3—

1872.

Edwin Bartlett, Bath. Farmer. *Spearville. Ford Co., Kansas.*

Frank Alexander White, Bow. Surveyor, Farmer.

Route 4, Concord.

1873.

2—

†Frederick Erasmus Eldredge, Kensington,

James Fred Smith. A. B., A. M., Dartmouth, 1885; A. M. Stanford, 1900. Principal of High School.

43 McCoy Ave., Campbell, Cal.

Charles Henry Tucker, Plaistow. Woodworker.

24 Highland St., Amesbury, Mass.

3—

1874.

Millard Fillmore Hardy, Rev., Nelson. Graduated Theo. Inst., Ct., 1878. Clergyman. *East Jaffrey.*

*Henry Abbott Sawyer, North Weare.

2—*1

1875.

Walton Herman Aldrich, M. D., Univ. N. Y. City. 1880; Troy. Physician and Surgeon. *Marlborough.*

†Frank Pierce Curtis. Grocer.

Fitchburg, Mass.

Frank Veranus Emerson. Lebanon. Manager Axe Mfg. Plant.

Masconia Terrace, East Lebanon.

Charles Webster Hardy, M. D. Mo. Med. Coll., 1881; Marlboro.

Physician and Surgeon. *201 So. Main St., Ottawa, Kansas.*

Harvey Jewell, Winchester. Fruit Grower and Poultryman.

R. F. D. 1, Cromwell, Conn.

*Charles Ormille Leavitt, Lebanon.

*John Loney McGregor, D. D. S., Phila. Dental Coll., 1877, M. D. Dartmouth, 1883; Whitefield.

Eliel Peck, Lebanon, Postmaster.

Kimball, Stearns County, Minn.

Ira William Ramsey, Walpole.

*Walpole.*Orlando Leslie Seward, Keene. Artist. *287 Church St., Keene.*

Emery Mason Willard, Harrisville. Druggist, 15 Union Street,
Boston, Mass. *109 Hewlett St., Roslindale, Mass.*

11—*3

1876.

Herbert Cyril Aldrich. Troy. Insurance and Real Estate.
329 West 4th St., Los Angeles, Cal.

†Edmund Lawson Brigham, Jaffrey. Mechanic.

Joseph Warren Butterfield, Westmoreland. Farmer.

North Montpelier, Vt.

Arthur French Chamberlain, Westmoreland. Partner and New
York and Foreign Buyer, of Edson Keith & Co.

132 Michigan Ave., Chicago, Ill.

Anson Ballard Cross, Holyoke, Mass. Contractor and Builder
of Railroads.

Main St., Wilmington, Vt.

Warren Webster Kimball, Troy. Merchant. *Troy.*

Daniel Deeth Parker, Fitzwilliam. With Heywood Bros. & Wake-
field Co. *Box 56, Gardner, Mass.*

7—

1877.

Rollin Kirk Adair, Indian Territory. Retail Groceries.

Chelsea, Indian Ter.

*Homer Brooks, M. D., N. Y. Hom. Med. Coll., 1881, Franconia.

John Washington Carson, Mont Vernon. Farmer and Land Sur-
veyor. *Francestown.*

*Charles Otto Chubert, Troy.

*Charles Albert Edwards, LL. B., Univ. of Iowa, 1880; Keene.

*William Francis Flint, Richmond.

Clinton Camillus Hall, Westmoreland. Agt. New York Life Ins.
Co. *East Westmoreland.*

John Goodrich Henry, M. D., Dartmouth, 1880; Chesterfield.
Physician. *15 Pleasant St., Winchendon, Mass.*

*Charles Pitkin Hollister, North Montpelier, Vt.

George Mirick Holman, M. D., Fitchburg, Mass., Teacher.

334 Boylston St., Boston, Mass.

Charles Appleton Hubbard, Troy. Treasurer United Fruit Com-
pany. *Board of Trade Building, 131 State St., Boston, Mass.*

Carlos Augustus Wheeler, East Calais, Vt. Bee Keeper and
Farmer. *Bracken, Comal Co., Texas.*

Everard Whittemore, Fitzwilliam. Insurance and Real Estate.
14 River St., Hudson, Mass.

13—*5

1878.

†Ezra Eastman Adams, Manchester.

*Elmer Kilburn, Marlow.

Charles Edward Record, Fitchburg, Mass. Contractor and
Builder. *73 Green St., Leominster, Mass.*

3—*1

1879.

Charles Hardy Bailey, M. D., Dartmouth, 1881. Physician.

*89 East Broadway, Gardner, Mass., Station A.*Richard Clinton Chapin, Chicopee, Mass. With American Writing
Paper Company. *Holyoke, Mass.*

*Lucius M. Cragin, Lempster.

*Nathaniel Cutler Holmes, Jaffrey.

Fred Charles Park, Lempster. Traveling Salesman.

*6 Essex St., Concord.*George Henry Wilkins, M. D., N. Y. Hom. Med. Coll., 1883; Am-
herst. Physician. *324 Walnut St., Newtonville, Mass.*

6—*2

1880.

Charles Harvey Hood, Derry. Milk Business.

2 Benton Road, Somerville, Mass.

1—

1881.

Edwin Thompson Aldrich, Troy. General Insurance Agent.

Bridgman's Block, Keene.

Henry Lyman Barnard, Troy. Clerk.

Troy.

*George Jordan Boardman, Lawrence, Mass.

Edwin Franklin Bristol, Harwinton, Conn. Farmer.

Ascutneyville, Vt.

Artemas Terald Burleigh, Farmer and Lumber Dealer.

*Franklin.*Frank Dana Ely, Cavendish, Vt. With Vermont Marble Com-
pany, Electrician. *6 School St., Proctor, Vt.*Sanford Eugene Emery, LL. B., Albany Law School, 1886;
Proctorsville, Vt. Attorney-at-Law. *Proctorsville, Vt.*Charles Herbert Hazen, Hartford, Vt. Farmer and Market
Gardener. *Bethlehem.*

Frank P. Marston, Hartford, Vt. Real Estate and Insurance.

*46 Main St., Hudson, Mass.*William Augustus Megrath, M. D., Dartmouth, 1886; Cavendish,
Vt. Physician. *Loudon.*

Fred Townsend Stanton, Strafford. Farmer.

R. F. D. No. 1, Rochester.

Victor Hugo Stickney, M. D., Dartmouth, 1883; Tyson, Vt. Physician and Surgeon. *Dickinson, N. Dak.*

Samuel Austin Wallace, Ph. G., Boston School of Pharmacy, 1886; West Hartford, Vt. Druggist. *Crookston, Minn.*

George Herbert Whitcher, Strafford. Director of the New Hampshire Agricultural Experiment Station, February 22, 1888 to November 1, 1894; Professor of Agriculture of the New Hampshire College, June, 1887 to November 1, 1894. District Superintendent of Schools, August 1, 1900. *Berlin.*

14—*1

1882.

Harvey Lincoln Boutwell, LL. B., Boston University, 1886; Hopkinton. Attorney-at-Law, 209 Washington Street, Boston, Mass. *37 Pierce St., Malden, Mass.*

Dana Justin Bugbee, North Pomfret, Vt. Mining in Colorado. *North Pomfret, Vt.*

*Robert Fletcher Burleigh, M. D., Dartmouth, 1887; Franklin. La Forrest John Carpenter, Surry. Farmer.

R. F. D. No. 1, Shirley, Mass.

Edwin Preston Dewey, Hanover. City Engineer.

237 Olive Ave., Long Beach, Cal.

George Andrew Loveland, LL. B., University of New York, 1886, Norwich, Vt. Section Director United States Weather Bureau. *1130 So. 20th St., Lincoln, Neb.*

†John Wright Mason, Hanover.

Harlan Addison Nichols, M. D., Derry. Physician and Surgeon. *Care Montezuma Copper Co., Nacozari, Sonora, Mexico.*

*Frank Elmer Thompson, Stark.

9—*2

1883.

Elmore Ferdinand Arnold, M. D., University City of New York, 1885; Londonderry, Vt. Physician.

902 Broadway, New York, N. Y.

Frank Landor Bigelow, Proctorsville, Vt. Instructor in Mathematics and Sciences, Goddard Seminary, Barre, Vt., 1883-1886. Business. *Rutland, Vt.*

Frederick Stocks Birtwhistle, Troy. Consulting and Supervising Electrical Engineer.

51 Tucker Bldg., Raleigh, N. C.

Noice D. Bristol, Harwinton, Conn. Photographer.

2665 Medary Ave., Columbus, O.

Frederick Plummer Comings, Lee. Trustee New Hampshire College, 1893-1903. *Lee.*

Frank Harry Follansbee, Canaan. Railway Postal Clerk.

41 Sharon St., West Medford, Mass.

Adams Clark French, M. D., D. O., Franklin Falls. Physician.

231 So. Hayne St., Chicago, Ill.

James Edgar Gay, Tunbridge, Vt. Woolen Manufacturer.

Cavendish, Vt.

Elmer Daniel Kelley, Franklin Falls. Farmer and Business.

445 Central St., Franklin Falls.

Alvah Benjamin Morgan, Canaan. Pharmacist, Stationer and Newsdealer. *Woodstock, Vt.*

William Lincoln Whittier, Deerfield. Foreman of Machine Shop.

121 Rantoul St., Beverly, Mass.

Charles Minot Woodward, Hanover. Teacher, Public Schools.

1620 College Ave., Fort Worth, Texas.

12—

1884.

*Ernest Smith Cummings, Lee.

Fred Carlos Davis, South Reading, Vt. Lawyer, Civil Engineer and Farmer. *123 South St., Springfield, Vt.*

Sylvester Miller Foster, Riverhead, N. Y. *Westport, Conn.*

Herbert Harvey Kimball, M. S., Columbian University, 1900, Hopkinton. Director of Research Work in Solar Radiation, U. S. Weather Bureau. *Washington, D. C.*

Moses Bisbee Mann, Benton. Inspector of Customs.

Custom House, Boston, Mass.

George Milton Moore, Plymouth, Vt. In private business.

Ludlow, Vt.

Ziba Amherst Norris, Lyme. Dealer in Groceries and Provisions, Wholesale and Retail, Dorchester and Cohasset.

587-593 Washington St., Dorchester, Mass.

Edwin Chapin Thompson, Lee. In charge Local Office.

Observation Bldg., LaCrosse, Wis.

8—*1

1885.

George Ellsworth Adams, Weston, Vt. Merchant.

*Vernal, Utah.*Ruel Seabury Alden, Lyme. Superintendent of College Farm,
1895-'97. Superintendent Vermont Marble Company's Farms.*Proctor, Vt.*Walter Eugene Angier, C. E., Dartmouth, 1887; West Swanzey.
Civil Engineer. *Office, 1750 Monadnock Block, Chicago, Ill.*

Edward Alonzo Bailey, West Swanzey. Chair Maker.

55 Pine St., Keene.

†Phillips Greenleaf Bickford, Lyme.

Andrew Walter Brill, Riverhead, L. I. Clerk North British and
Mercantile Fire Insurance Company, 76 Williams Street, New
York, N. Y. *Hempstead, N. Y.*

†Paul Cuff Brooks, Boston, Mass.

Frank Jay Emerson, Epping. Civil Service, U. S. Govt.

Box 312, Portsmouth.

Allen Hazen, Wilder, Vt. Consulting Engineer.

103 Park Ave., Cor. 41 St., New York, N. Y.

George Mayo Mullins, Londonderry. Attorney-at-Law.

*727 Symes Bldg., 16th and Champa St., Denver, Colo.*Albert Henry Wood, Lebanon. Associate Professor of Agriculture,
1890-'94. Grain Merchant. *Framingham, Mass.*

11—

1886.

Frank Albert Davis, M. B., M. D., Boston University School of
Medicine, 1897, 1898; South Lee. Physician.*Hotel Buckminster, Commonwealth Ave. and Beacon Sts.
Boston, Mass.*

James Ellsworth Harvey, Surry. Photographer.

*51 North Main St., Concord.*Beleazar Stoianoff Ruevsky, Tirnovo, Bulgarie. Maître au Gym-
nase de garçon du Government, Tirnovo, Bulgaria.*Termoro, Bulgaria.*Madison Templeton Thurber, M. D., Dartmouth, 1890, Webster.
Physician. *85 Savin Hill Ave., Boston, Mass.*

Edward Hills Wason, New Boston. Attorney-at-Law.

*142 Main St., Nashua.*George Pillsbury Wood, Lebanon. Draftsman in charge, Bureau
of Yards and Docks, Navy Department.*3407 Holmead Place, N. W., Washington D. C.*

6—

1887.

- William Sprague Currier, Norwich, Vt. Local Forecaster U. S. Weather Bureau, *1631 Nicholas Bldg., Toledo, Ohio.*
 Arthur Woodbury Hardy, C. E., Dartmouth, 1889; Hopkinton. Manager Western Sprinkler Risk Association. *240 La Salle St., Chicago, Ill.*
 George Albert Sanborn, Rochester. Salesman. *34 Pine St., Rochester.*

- Hiram Newton Savage, C. E., Dartmouth; White River Junction. Vt. Member Am. Soc. C. E.; Supervising and Consulting Engineer, U. S. Reclamation Service. *Huntley, Montana.*
 Bion Leland Waldron, Strafford. Official in charge U. S. Weather Bureau. *Government Bldg., Hannibal, Mo.*

5—

1888.

- *Melvin Burnside Carr, North Haverhill.
 Herbert Grant Davis, South Lee. General Manager Sea View Railroad Company and Narragansett Pier Electric Light & Power Company. *Narragansett Pier, R. I.*
 Edwin Chandler Gerrish, Webster. Assistant Paymaster and Long Distance Farmer. *66 Broadway, Lowell, Mass.*
 †William Nelson Hazen, C. E., Dartmouth, 1890. Chief Draftsman for the Structural Iron and Steel Co., Bush Street and B. & O. R. R. *Pittsburg, Penn.*
 Edward David O'Gara, Hanover. Farmer. *Hanover.*
 George Elmer Porter, M. D., Dartmouth, 1892; Hartford, Vt. Physician and Chemist. *Warehouse Pt., Conn.*
 George Jonathan Sargent, Canterbury. Civil Engineer and Contractor. *Canterbury.*
 John Warren Smith, M. S., 1900; Grafton. Section Director U. S. Weather Bureau. *16 East Broad St., Columbus, Ohio.*
 George Elwin Walker, Littleton. Farmer. *Littleton.*

8—*1

1889.

- Fred Harvey Colby, Hopkinton. Fruit Grower. *Prosser, Wash.*
 †Linwood Carroll Gillis.
 *Louis Jerome Hutchinson, Norwich, Vt.
 John Lawrence Norris, Lyme. Norris Brothers, Groceries and Provisions, 1673-1679 Washington Street, Boston; 529-535 Dudley Street, Roxbury; and 587-593 Washington Street, Dorchester, Mass. President of the Dairy Association Com-

pany, Lydonville, Vt.; Secretary and Treasurer of Photo
Fabric Company of America. 6 Worcester Sq., Boston, Mass.
Charles Walter Earl Scott, Winchester. Mechanic.

Darrington, Wash.

David Elmer Stone, Hartford, Vt. Grain Merchant.

Framingham Center, Mass.

Fred Washburne, West Springfield. With Sargent & Co., Fore-
man of Foundry Department.

56 Carmel St., New Haven, Conn.

7—*1

1890.

John Young Jewett, C. E., Dartmouth, 1895; Gilford. Cement
Expert, U. S. Reclamation Service.

Armour Institute, Chicago, Ill.

†Joseph Franklin Preston, Hanover. Clerk. *Boston, Mass.*

Elihu Quinby Sanborn, Webster. Machinist. *Contoocook.*

Clarence Ira Slack, Norwich, Vt. Cashier.

51 North Market St., Boston, Mass.

4—

1891.

Ernest Gowell Cole, Hampton. Postmaster and Merchant.

Hampton.

Russell Marden Everett, Chester. Patent Lawyer and Solicitor.

788 Broad St., Newark, N. J.

Edward Payson Stone, Canaan Center. Farmer. *Orford.*

3—

1892.

Percey Lovejoy Barker, C. E., Dartmouth, 1894; Milford. Super-
visor of Bridges and Buildings, N. Y. C. & H. R. R. R.

Jersey Shore, Penn.

Fred Driggs Fuller, Hanover. Chief Chemist, Pennsylvania De-
partment of Agriculture. *State Capitol, Harrisburg, Penn.*

Arthur Benezette Hough, Lebanon. Dairy Farmer. *Lebanon.*

Edward Monroe Stone, C. E., Dartmouth, 1894; Marlborough.
Architect and Engineer. *49 Pearl St., Hartford, Conn.*

4—

1893.

Wilton Everett Britton, Ph. D., Yale, 1903; Keene. State Ento-
mologist and Entomologist of the Connecticut Agricultural

- Experiment Station. 296 McKinley Ave., New Haven, Conn.
 Frank John Bryant, Enfield. Postoffice Clerk. *Lebanon.*
 Charles Elbert Hewitt, M. M. E., Cornell, 1895; Hanover. Pro-
 fessor of Electrical Engineering, New Hampshire College.
Durham.
 Charles Lincoln Hubbard, M. E., 1895; Fitzwilliam. Consulting
 Engineer. 283 Central St., Auburndale, Mass.
 Orrin Moses James, Northwood. Civil Engineer State Highway
 Department. *Northwood Narrows.*
 Arthur Whitmore Smith, M. Sc., Ph. D., Norwich, Vt. Assistant
 Professor of Physics, University of Michigan.
 1008 Oakland Ave., Ann Arbor, Mich.

6—

1894.

- Bert Sargent Brown, Hanover. Farmer. *Hollis.*
 Fred Willis Gunn, Keene. Machinist.
 18 Huron St., Providence, R. I.
 Frederic William Howe, Hollis. Professor of Chemistry, Food
 and Dietetics, State Normal School, Framingham, Mass.,
 Scientific Director Walker Gordon Laboratory Co., and Di-
 rector of Food Laboratory, Boston Floating Hospital.
 793 Boylston St., Boston, Mass.

3—

1895.

- Frank Stanley Adams, Gilsum. In office Vermont Farm Machine
 Company. 35 Atkinson St., Bellows Falls, Vt.
 Frank Clifton Britton, Keene. With the Sullivan Machinery
 Company of Claremont and Chicago (Cost-accounting Depart-
 ment). 7 Prospect St., Claremont.
 Henry Elmer Hill, Plainfield, Vt. With the Arizona Lumber
 Company. *Plainfield, Vt.*
 Charles Arthur Trow, Mont Vernon. Chief Engineer in construc-
 tion of Uba Railroad. 602 Rialto Bldg., San Francisco, Cal.

4—

1896.

- Lewis Harris Kittredge, Keene. President the Peerless Motor
 Car Company, *Overlook Road, East, Cleveland, Ohio.*

1—

1897.

- Harlan Winfred Barney, Grafton. With Amoskeag Mfg. Co.
112 Myrtle St., Manchester.
- Carrie Augustus Bartlett, Lee. Teacher. Route 1, Newmarket.
- Mary Blaisdell Bartlett, (Mrs. I. A. Colby), Epping.
Ellwood City, Penn.
- Walter French Buck, Manchester. Teacher.
129 W. Elm St., Brockton, Mass.
- Arthur Willard Colburn, Dracut, Mass. Farmer. Dracut, Mass.
- Carrie Lydia Comings, Durham. Teacher, Beverly High School.
28 Abbott St., Beverly, Mass.
- Irving Lyford Dennett. Steam Engineer, Corn Products Refining
Company. Hudson Heights, N. J.
- *Mary Elizabeth Comings (Mrs. I. L. Dennett), Durham.
- Elwin Henry Forristall, M. Sc., 1900, Columbia. Supt. Mass.
Agricultural Coll. Farm. Amherst, Mass.
- Leslie David Hayes, Durham. Instructor of Descriptive Geome-
try, Sibley College, Cornell University.
400 Stewart Ave., Ithaca, N. Y.
- John Norton Hunt, Peterborough, Peterborough.
- Ellery Dunbar Jenkins, Lee. Chemist, Lowell Fertilizer Com-
pany. P. O. Box 105, Lowell, Mass.
- Woodruff Mason, Stamford, Conn. Balenville, N. Y.
- Roscoe Hart Shaw, Milton. Dairy Expert, U. S. Department of
Agriculture. University of Missouri, Columbia, Mo.
- Charles William Vickery, Dover. With Claflin Brothers, Mining
Engineers. Nome City, Alaska.
- Delbert Amos Wheeler, South Ashburnham, Mass. Teacher.
Boston, Mass.
- Everett Sidney Whittemore, Colebrook. Proprietor of North
Conway Creamery. North Conway.
17—*1

1898.

- *Richard Cole Butterfield, Westmoreland.
- Helen Buzzell, (Mrs. Alexander McRae), Lee. R. F. D., 5, Dover.
- Bernice Elisabeth Caverno (Mrs. E. H. Hancock), Durham.
Charlestown, Mass.
- Burton Albert Corbett, Colebrook. Seed Potato Specialist and
Breeder of Holstein-Friesian Cattle. Colebrook.
- Alfred Caverly Durgin, Lee. Farmer and Fruit Grower.
R. F. D., Newmarket.

- James Alfred Foord, Walpole. Professor of Farm Administration and Acting Head of the Div. of Agriculture, Massachusetts Agricultural College. *Amherst, Mass.*
- John Williams Fullerton, Somersworth. Paymaster with Great Falls Woolen Company. *Somersworth.*
- Arthur Given, Durham. Assistant Chemist, U. S. Department of Agriculture, Bureau of Chemistry.
1110 16th St., N. W., Washington, D. C.
- Edward Henry Hancock, Belmont. With C. H. Hood Co., Milk business. *Charlestown, Mass.*
- Mabel Lucy Hayes, Durham. In charge of Commercial Dept. in High School. *5 Spring St., Newburyport, Mass.*
- Tomokichi Hirokawa, B. S., Massachusetts Institute of Technology; Iamabari, Japan. Electrical Engineer, Kyoto Electric Light Company. *Kyoto, Japan.*
- Harry Clinton Mathes, Newmarket. Inspector Penn., N. Y. & L. I. R. R. Co. *195 10th St., Long Island City, N. Y.*
- Herbert Fisher Moore, M. E., Cornell, 1899; M. M. E., Cornell, 1903; Penacook. Assistant Professor of Theoretical and Applied Mechanics, University of Illinois. Member American Society of Testing Materials.
Laboratory of Applied Mechanics, Champaign—Urbana, Ill.
- Gerry Austin Morgan, Goffstown. Draftsman with Cox Multi-Mailer Company. *93 Blackstone St., Woonsocket, R. I.*
- Harry Putnam Richardson, Milford. With Southern Pacific R. R. *560 10th St., Oakland, Cal.*
- Fred Dexter Sanborn, Ashland. Paper Box Manufacturer. Publisher of Weekly Newspaper and Mgr. Job Printing Plant. *Ashland.*
- Fred Webster Smith, Franklin Falls. Representative of Geo. D. Mayo Machine Co. *Sixth and Arch Sts., Laconia.*
- Benjamin D. Tolles, Somersworth. With Great Falls Manufacturing Company, Department of Carding. *Berwick, Maine.*
- 18—*1

1899.

- Henry Clark Baker, South Yarmouth, Mass. Electrical Engineer, Care Crocker-Wheeler. *Ampere, N. J.*
- Harry Everett Barnard, Nashua. State Chemist, State House, Indianapolis, Ind.
- Harrison Edward Clement, Nashua. Member American Institute Mining Engineers, Mining Engineer. Member of firm Clement & Strange, Engineers and Contractors.
312 Dooley Block, Salt Lake City, Utah.

Irving Atwell Colby, Exeter. Designer with Shelby Steel Tube Co. *Box 66, Ellwood City, Penn.*

Willis Daniel Farley Hayden, Hollis. Farm Manager. *Stark Ave., Dover.*

Frederick Libbey Horton, Dover. Engineering Department General Electric Company.

35 Lovers' Leap Avenue, Lynn, Mass.

William Elmer Hunt, Nashua. Captain Twenty-Second United States Infantry. Professor of Military Science and Tactics, New Hampshire College. *Durham.*

Lewis Hobart Kenney, M. E., Pownal, Me. Draftsman-in-charge, Dept. of Steam Engineering, U. S. Navy Yard.

U. S. Navy Yard, Phila. Penn.

Grace Agnes Mark (Mrs. Herbert F. Moore), Gilsum.

710 West Hill St., Champaign, Ill.

Arthur Zebulon Norcross, Rindge. Farmer. *Pomfret, Conn.*

Harry Nelson Putney, Franklin. Machinist B. & M. R. R. Shops. *Concord.*

Etta Lillian Simpson, Durham. Principal Dartmouth High School. *Dartmouth, Mass.*

12—

1900.

Herbert Prescott Andrews, Hollis. Engineer, Century Electric Co. *404 North 4th St., St. Louis, Mo.*

David Burns Bartlett, J. B. and J. M., Boston University Law School, 1907; Manchester. Lawyer.

53 State St., Boston, Mass.

Frances Burnham (Mrs. Robert McA. Keown), Durham.

206 No. Brooks St., Madison, Wis.

Blanche Mary Foye, Durham. Teacher, French and German.

Concord, Mass.

Charles Elliott Page Mathes. Manager Contract Dept., L. R. Ry. & Elect. Co. *Little Rock, Ark.*

Edward Emil Nelson, Nashua. Member of American Institute of Mining Engineers. With American Smelting and Refining Co. *62 E St., Salt Lake City, Utah.*

Alvena Pettee (Mrs. Edward E. Nelson), Bachelor's Diploma in Domestic Science, Teachers' College, Columbia University, 1903; Durham. *62 E St., Salt Lake City, Utah.*

Marie Livingstone Robertson (Mrs. Benjamin M. Duggar), Buffalo, N. Y. *Ithaca, N. Y.*

Walter Noah Shipley, Nashua. Steam Turbine Department, Gen-

eral Electric Company, *138 Lakeview Ave., Lynn, Mass.*
 Charles Edwin Stillings, Somersworth. Power House Operator.

With Interborough Rapid Transit Co., New York City.

74th St. and East River, New York, N. Y.

John Ernest Wilson, Hollis. Electrical Contractor.

217 1-2 West 1st St., Los Angeles Cal.

Robert Morrill Wright, Hill. Dealer in Flour, Feed, Grain and
 Hay. *Hill.*

12—

1901.

Henry Harold Calderwood, Nashua. Turbine Assembly Department with General Electric Co.

428 Central St., Saugus, Mass.

Charles Henry Courser, Warner. Chief Engineer, Wheelwright Paper Mills, Hardwick, Leominster and Fitchburg.

Leominster, Mass.

Alice Emerson Dorr, (Mrs. Lewis Cilley); Dover.

11 Summer St., Dover.

Harry Willis Evans, Portsmouth. Testing Engineer, Commonwealth-Edison Company. *550 La Salle Ave., Chicago, Ill.*

Harry Gilbert Farwell, Keene. Engineering Department, General Electric Company. *403 Summer St., Lynn, Mass.*

Ella Gertrude Gowen, Dover. Giving Lessons in Cookery.

15 Lexington St., Dover.

Charles Almon Hunt, Nashua. First Lieutenant, Seventh U. S. Infantry. *Fort Brady, Sault Ste. Marie, Mich.*

Edwin Price Jewett, Lakeport. In charge of Prescription Department Walker Gordon Laboratory Co.

2112 Michigan Ave., Chicago, Ill.

Robert McArdle Keown, Pomona, Fla. Asst. Professor in Machine Design, University of Wisconsin.

206 No. Brooks St., Madison, Wis.

Elmer Eugene Lyon, Wentworth. Teacher History and Civil Government, Rugby Academy.

4803 St. Charles Ave., New Orleans, La.

George J. Penneo, Hampstead. Farmer. *Hampstead.*

Harold Morrison Runlett, Durham. Wholesale Shoe Business.

With Clark Hutchinson Co., 121 Duane St., New York, N. Y.

Edson Albert Straw. With the A. K. Co., Box Dept. *Ashland.*

13—

1902.

Mary Doe, (Mrs. Charles H. Ayres), Rollinsford.

21 W. 31st St., New York, N. Y.

Edwin W. Gilmartin, Nashua.

9 Middle St., Nashua.

John C. Kendall, Peterboro. State Dairy Commissioner.

Manhattan, Kans.

Harry M. Lee, Moultonborough. Foreman Buena Vista Farm.

Windsor, Vt.

Abiel A. Livermore, Wilton, Rose Grower.

290 Salem St., Wakefield, Mass.

George E. Merrill, B. Ag., Cornell University, 1903; Newburyport, Mass. Special Field Agent, Bureau of Entomology, U. S. Dept. of Agriculture.

*Washington, D. C.*Charles A. Payne, Portsmouth. Technical Asst. Heating—Engineering Dept., G. E. Co. *320 McClellan St., Schenectady, N. Y.*

Eugene P. Runlett, Durham. With Williams & Clark Shoe Manufacturers, Lynn, Mass.

Arthur L. Sullivan, Suncook. Chemist, Bureau of Chemistry U. S. Dept. of Agriculture.

1461 Chapin Street, N. W., Washington, D. C.

9—

1903.

Harry David Batchelder, West Upton, Mass. Chief Chemist, Carnegie Steel Co., Sharon Coke Works, South Sharon, Penn.

Box 491, Sharon, Penn.

Edgar Forest Bickford, Rochester. Asst. Electrical Engineer, B. & N. St. Ry. Co. & O. C. St. Ry. Co.

84 State St., Boston, Mass.

Frank Ray Brown, Durham. Instructor in Shopwork, New Hampshire College.

Durham.

Everett William Burbeck, Haverhill. Mining & Civil Engineer with Oliver Iron Mining Co.

Box 370, Eveleth, Minn.

Everett Garfield Davis, Newmarket. Provision Dealer.

*Kingston.*Albert Noah Otis, Durham. With Ford, Bacon & Davis, Consulting Engineers and Contractors. *24 Broad St., New York, N. Y.**806 Gay St., Knoxville, Tenn.*

Ralph Harvey Rollins, East Concord. Engineer U. S. Reclamation Service.

*Yuma, Ariz.*Morris Archer Stewart, Dover. Chemist. *121 Belknap St., Dover.*

David Albert Watson, Durham. Farming.

R. F. D. No. 1, Durham.

Melvin Johnson White, M. A., Univ. of Wisconsin, 1907; Farmington. Instructor of American History and Civics in High School. 208 No. Brooks St., Madison, Wis.

10—

1904.

Leander Ashton, Pittsfield. Carnation Grower.

High Street, Framingham Center, Mass.

Walter Allen Barker, Pittsfield. Civil Engineer with Stone & Webster Engineering Corporation.

15 Exchange St., Boston, Mass.

Edgar Charles Bickford, Durham. Electrical Assistant at B. E. Ry. E. E. Office. 552 Harrison Ave., Boston, Mass.

Percy Anderson Campbell, Litchfield. Professor of Animal Industry, University of Maine. Orono, Maine.

Carroll Winfred Farr, North Weare. Dairy Farmer and Breeder of Ayrshire Cattle. North Weare.

Joseph Ezra Goodrich, New Durham. Master of Ridge School.

Chapin Cottage, Washington, Conn.

George Herbert Hill, La Crosse, Wis. Draughtsman at Office of Supt. of Shops, Chicago, Burlington & Quincy R. R.

C. B. & Q., Aurora, Ill.

Thomas Jefferson Laton, Nashua. Instructor in Mechanical Drawing, New Hampshire College. Box 155, Durham.

Raymond Louis Lunt, Dover. Telephone Engineer, Western Electric Co. 463 West St., New York, N. Y.

Arthur Ronello Merrill, North Bridgton, Me. Dairy Farmer.

Norfolk St., Holliston, Mass.

Samuel Ambrose Richardson, Charlestown. Foreman for G. M. Gest, Conduit Contractor. 277 Broadway, New York, N. Y.

11—

1905.

John Henry Chesley, Rockingham. Turbine Testing Department, General Electric Company. 77 Mall St., West Lynn, Mass.

Cleon Orestes Dodge, Sunapee. Chemist, Bureau of Chemistry.

Bureau of Chemistry, Washington, D. C.

Silas Bryden Hayden, South Natick, Mass. Engineer.

Box 958 Gary, Ind.

Harry Linwood Hayes, Exeter. Testing Dept., General Electric Company. Schenectady, N. Y.

Warren Chauncey Hayes, Durham. Graduate Student, New Hampshire College. Durham.

Fred Harvey Heath, Warner. Student in Graduate School of Yale University and Asst. in Qualitative Analysis in Kent Laboratory.

P. O. Box 712, Yale Station, New Haven, Conn.

*Harold Nims Knight, Marlborough.

Joseph Wesley Moreton, Medford, Mass. Electrical Engineer, Niagara, Lockport and Ontario Power Co.

Y. M. C. A. Bldg., Buffalo, N. Y.

Orlo Dudley Mudgett, Gilmanton. Sales Department, Westinghouse Electric & Manufacturing Company.

716 Board of Trade Bldg., Boston, Mass.

Horace James Pettee, Durham. Structural Draftsman, Illinois Steel Co.

550 La Salle Ave., Chicago, Ill.

Arthur Mahlon Pike, Dover. Construction Foreman, General Electric Co.

Schenectady, N. Y.

Fred Silver Putney, M. S., Penn. State College, 1908, Hopkinton. Scholar at Univ. of Missouri, 1908-'09.

Columbia, Mo.

John Leslie Randall, M. S., Lee. Teacher, State Normal School.

California, Penn.

William Orrin Robinson, M. S., Marlborough. Physical Chemist, Bureau of Soils, Dept. of Agriculture.

Bur. of Soils, Washington, D. C.

*Harry Union Russell, West Derry.

Elmer Seth Savage, Lancaster. Instructor in Animal Husbandry, Cornell University.

606 No. Aurora St., Ithaca, N. Y.

Castine Caroline Swanson, Cambridge, Mass.

10 Hollis St., Cambridge, Mass.

Frank Alvin Tinkham, Grafton. Farming.

Grafton.

18—*2

1906.

Samuel Taylor Adams, Pittsfield.

Durham.

Stuart Kendrick Barnes, Walpole. Chief Chemist, Retort Coke Oven Co.

Cleveland, Ohio.

Charles S. Batchelder, South Hampton. Market Gardening.

Waban, Newton Centre, Mass.

Willis Cassius Campbell, West Windham.

4651 Drexel Boulevard, Chicago, Ill.

John Dustin Clark, Nashua. Associate Professor of Chemistry, Univ. of New Mexico.

Albuquerque, N. Mex.

Clarence Elbert Clement, Derry. Dairyman.

Cherry Hill Farm, Beverly, Mass.

Ernest Luther Converse, Amherst. Instructor in Sciences, Virginia Institute.

Bristol, Va.

Neil Starr Franklin, Bernardston, Mass. With Westinghouse Electric and Manufacturing Co.

1105 South Ave., Wilkesburg, Penn.

Carl Tilson Fuller, Nashua. Chemical Engineer, General Electric Co. Lamp Works. *Harrison, N. J.*

William Safford Gooch, Exeter. Engineering Department, New England Tel. & Tel. Co. *164 High St., Boston, Mass.*

Ralph Edward Gowen, Stratham. Running Power House for Carbon Coal Co. *Carbon, W. Va.*

Edwin Davis Hardy, Nashua. Testing Steam Turbines.

E. Pittsburg, Penn.

Cyrus Fremont Jenness, Gonic. Market Gardening.

Waban, Newton Centre, Mass.

Allen Montague Johnson, Nashua. *9 Locust St., Nashua.*

Wallace Fuller Purington, South Yarmouth, Mass. Assistant Chemist, New Hampshire State Board of Health, Laboratory of Hygiene, Concord. *Concord.*

Edwin Jay Roberts, Laconia. Graduate Student, Assistant in Kent Chemical Laboratory.

Box 712, Yale Station, New Haven, Conn.

Roy Vance Swain, Barrington, With Autocar Company.

45 Wyoming Ave., Ardmore, Penn.

Charles Leo Tuttle, Exeter. Engineering Department, New England Tel. and Tel. Co. *164 High St., Boston, Mass.*

18—

1907.

Leon Dexter Batchelder, West Upton, Mass. Asst. Florist, Dept. of Horticulture, Cornell University. *Ithaca, N. Y.*

Philip Ray Berry, Alton. *Alton.*

Andrew Broggini, Concord. Turbine Testing Dept., General Electric Company. *77 Mall, West Lynn, Mass.*

Harold Hurst Dickey, Manchester. Dept. Manager John A. Whalley Company. *209 Coleman Bldg., Seattle, Wash.*

Carl Austin Dodge, New Boston. Asst. Chemist, Wellsbach Light Company. *Gloucester City, N. J.*

Harry Edward Ingham, Nashua. Instructor in Shopwork, New Hampshire College. *Box 155, Durham.*

Frank Davis Lane, Manchester. Instructor.

79 Walnut St., Manchester.

Ralph Albion Littlefield, Portsmouth. Dairy Farming.

N. Reading, Mass.

Bernard C. Noyes, Lisbon. Massachusetts State Forest Service. *Room 7, State House, Boston, Mass.*

- John Glenn Powers, Concord. Instructor in the Abbott School.
Farmington, Maine.
- Frank Wiggin Randall, Portsmouth. *Portsmouth.*
- Ellice Storrs Townsend, (Mrs. C. D. Hazen, Jr.), Lebanon.
White River, Vt.
- Lucia Soule Watson, Durham. Teacher in Enfield High School.
Wells St., Enfield.
- Arthur Jason Woodward, Lancaster. Testing Dept. General Electric Company.
303 Lenox Road, Schenectady. N. Y.

14—

1908.

- Waldo Lawrence Adams, Townsend, Mass. *Durham.*
- Arthur Hosea Barton, Newport. *Durham.*
- Arthur Milliken Batchelder, Suncook. *Suncook.*
- Minot Giles Buss, Wilton. Teacher Berlin High School. *Berlin.*
- Lawrence Andrew Carlisle, Exeter. *18 Oak St., Exeter.*
- James Dennis Cash, Massabesic. Teacher. *Manchester.*
- Mary Abbie Chesley, Durham. Teacher. *Thetford, Vt.*
- Francis Clough, Contoocook. General Electric Company.
Lynn, Mass.
- Charles Francis Cone, Nashua. *4 Myrtle St., Nashua.*
- Merton Maine Cory, Nashua. *12 Park St., Nashua.*
- John Timothy Croghan, Concord. *Concord.*
- Katharine DeMerritt, Durham. Teacher.
124 W. Broad St., Westerly, R. I.
- Walter Woods Evans, East Kingston. Graduate Student at University of Toronto. *Chemical Dept., University of Toronto.*
- Oren Lovell Farwell, Chesham. *Chesham.*
- Harry Fifield French, Plymouth. Asst. Chemist, State Lab. of Hygiene, Concord. *16 South St., Concord.*
- Stanley Fiske Hill, Nashua. *Nashua.*
- Merritt Chase Huse, Concord. *11 No. Spring St., Concord.*
- William R. Kirkpatrick, Nashua. Gypsy Moth Inspector, U. S. Govt. *Box 77, Nashua.*
- John Joseph O'Connor, Portsmouth. *3 Porter St., Portsmouth.*
- John Caleb Page, Dover. *Sixth St., Dover.*
- George Arthur Perley, Goffstown. Graduate Student at Cornell University. *715 State St., Ithaca, N. Y.*
- Sarah Elizabeth Pettee, Durham. Student at Teachers' College, Columbia University. *1230 Amsterdam Ave., New York, N. Y.*
- James Henry Priest, Manchester. *711 Beech St., Manchester.*
- Moses Herman Sanborn, Fremont. *Fremont.*
- Dean Fred Smalley, Walpole. Private Business. *Walpole.*

Carl Brown Tarbell, Milton.	Surveying.	<i>No. Rochester.</i>
Ray Emery Wadleigh, Kensington.	Illuminating Engineer, Southern Electric Company.	<i>Baltimore, Md.</i>
George Lyman Waite, Dunbarton.		<i>Concord, Route 2.</i>
Harold Duncan Walker, Kittery, Me.		<i>Kittery, Me.</i>
Francis Ward Woodman, W. Derry.	Graduate Student and Fellow at University of Missouri.	<i>417 Witt St., Columbia, Mo.</i>

30—

TWO YEAR COURSE IN AGRICULTURE.

Lyman Charles Stratton, Hollis, 1897.	Superintendent Dairy Farm.	<i>St. George, Ga.</i>
Charles Wesley Martin, Durham, 1898.	Clerk and Assistant with Sacramento Gas, Electric & Railway Company.	<i>3219 Magnolia Ave., Oak Park, Sacramento, Cal.</i>
George Henry Wheeler, Temple, 1898.	Farmer.	<i>Temple.</i>
Fred Joseph Durell, Newmarket, 1900.	Farmer.	<i>Newmarket.</i>
Harry Alvin Elliott, Lyme, 1900.	Blacksmith.	<i>Lyme.</i>
Edward Augustus Hills, Hollis, 1900.	Farmer.	<i>Hollis.</i>
Albert Cate Knowles, Epsom, 1900.	Farmer and Seed Agent.	<i>Epsom.</i>
	With Dunlap & Sons, Nashua.	
†Robert Hale Pearson, Webster, 1900.		
Charles Nicklin Blodgett, Hebron, 1901.	Manager Breezy Point Farm, Breezy Point.	<i>Warren.</i>
Harry Douglass Verder, Hollis, 1901.	Stock Raiser.	<i>Hollis.</i>
Rufus Leonard Cushman, North Adams, Mass. 1901.	Gardener.	<i>No. Auburn, Mass.</i>
†George R. Brew, Lowell, Mass., 1902.		
Carroll W. Farr, North Weare, 1902.	B. S. New Hampshire College, 1904.	
George F. Hills, Hollis, 1902.	Farmer.	<i>Hollis.</i>
Walter E. Quimby, Deerfield, 1902.	Farm Superintendent.	<i>Center Belmont, Maine.</i>
Walter P. Tenney, Chester, 1902.	Homedale Farm.	<i>Chester.</i>
†Thornton N. Weeks, Greenland, 1902.		
Robert E. Whittier, Deerfield, 1902.	Supt. Maplewood Farm, Danvers, Mass.	
Edward C. Wilson, Wilton, 1902.	Live Stock Commission, Union Stock Yards, care of Wood Bros.	<i>6022 Princeton Ave., Chicago, Ill.</i>
Harry Garfield Brierley, Dover, 1903.	Farmer.	<i>Stratham.</i>
†George Grover Manning, Boston, Mass., 1903.		
James Henry Nixon, East Brentwood, 1903.	Superintendent Red Hill Farm.	<i>R. F. D. 1, Centre Harbor.</i>

AND THE MECHANIC ARTS.

- Roscoe Franklin Swain, South Hampton, 1903. Dairy Farmer.
Amesbury, Mass.
- Erland Graves Batchelder, Wilton, 1904. Dairy Farmer, Poultry-
man and Fruit Grower. *Wilton.*
- Wesley Pillsbury Flint, Newburyport, Mass., 1904. Field Assist-
ant in Entomology, Office State Entomologist. *Urbana, Ill.*
- Henry Marston Shurbert, Northwood Ridge, 1904. Gardener for
Mrs. W. E. Barrett. *West Newton, Mass.*
- Arthur G. Dunn, Harrisville, 1905. Manager of Mine Brook
Farm. *R. F. D., Medfield, Mass.*
- Henry N. Gowing, Dublin, 1905. Poultryman and Fruit Grower.
Dublin.
- Alfred Walter Clough, 1906. Farmer. *Greenland.*
- Oliver Carter Dimond, West Concord, 1906. Farmer.
R. F. D. No. 12, West Concord.
- Ralph Wayne Forristall, Alstead, 1906. Farmer. *Alstead.*
- Stanley Hargreaves, 1906. Assistant, Forest Park, Springfield,
Mass.
- Robert S. Sawyer, 1906. Farmer. *Walpole.*
- David Raymond Batchelder, Wilton, 1907. Dairyman.
Cherry Hill Farm, Beverly, Mass.
- Alfred Elwin Blood, East Sullivan, 1907. Farmer.
East Sullivan.
- Abram Lawrence Dean, Taunton, Mass., 1907. *Madbury.*
- Simes Frink, Newington, 1907. Farmer. *Newington.*
- William Patrick Hickey, Bow, 1907. Timekeeper, Carnegie Steel
Company. *Newark, N. J.*
- Frederick Henry Charles Kampe, East Alstead, 1907. Agri-
culturist. *East Alstead.*
- Lee Augustus Parker, Keene, 1907. Gardener.
195 Eastern Ave., Keene.
- Lewis Elwell Sanborn, Ashland, 1907. Dairyman.
380 Plainfield St., Springfield, Mass.
- Ernest Eugene Tucker, Durham, 1907. Head Gardener Private
Estate. *Dublin.*
- Charles Shannon Wright, Portsmouth, 1907. Student New Hamp-
shire College. *Durham.*
- George A. Holmes, Langdon, 1908. *Langdon.*
- Guy Leavitt, Sanbornton, 1908. *Sanbornton.*
- Harold Thom Littlefield, Salem Depot, 1908. *Salem Depot.*

SUMMARY.

Graduates, Bachelors of Science, 1871-1908.....	346
Graduates, Two Year Course.....	46
Agriculturists	44
Business Pursuits	47
Chemists	17
Civil, Mechanical, Electrical and Mining Engineers.....	56
Draftsmen	6
Graduate Students	7
Lawyers	7
Manufacturers and Mechanics.....	27
Physicians	14
Teachers	43
Unknown	10
United States Army	2
United States Weather Bureau.....	6
Dead	20

ALPHABETICAL LIST OF GRADUATES.

- Adams, E. E., 1878.
 Adams, G. E., 1885.
 Adams, F. S., 1895.
 Adams, L. A., 1908.
 Adams, S. T., 1906.
 Adair, R. K., 1877.
 Alden, R. S., 1885.
 Aldrich, H. C., 1876.
 Aldrich, W. H., 1875.
 Aldrich, T. E., 1881.
 Andrews, H. P., 1900.
 Angier, W. E., 1885.
 Arnold, E. F., 1883.
 Ashton, L., 1904.
 Bailey, C. H., 1879.
 Bailey, E. A., 1885.
 Baker, H. C., 1899.
 Ballard, W. P., 1871.
 Barker, P. L., 1892.
 Barker, W. A., 1904.
 Barnard, H. E., 1899.
 Barnard, H. L., 1881.
 Barnes, S. K., 1906.
 Barney, H. W., 1897.
 Bartlett, Miss C. A., 1897.
 Bartlett, D. B., 1900.
 Bartlett, E., 1872.
 Bartlett, Miss M. B., 1897.
 Barton, A. H., 1908.
 Batchelder, D. R. (2 year), 1907.
 Batchelder, A. M., 1908.
 Batchelder, C. S., 1906.
 Batchelder, E. G. (2 year), 1904.
 Batchelor, H. D., 1903.
 Batchelor, L. D., 1907.
 Berry, P. R., 1907.
 Bickford, E. C., 1904.
 Bickford, E. F., 1903.
 Bickford, P. G., 1885.
 Bigelow, F. L., 1883.
 Birtwhistle, F. S., 1883.
 Blodgett, C. N. (2 year), 1901.
 Blood, A. E. (2 year), 1907.
 *Boardman, G. J., 1881.
 Boutwell, H. L., 1882.
 Brew, G. R. (2 year), 1902.
 Brierley, H. G. (2 year), 1903.
 Brigham, E. L., 1876.
 Brill, A. W., 1885.
 Bristol, E. F., 1881.
 Bristol, N. D., 1883.
 Britton, F. C., 1895.
 Britton, W. E., 1893.
 Broggini, A., 1907.
 *Brooks, H., 1877.
 Brooks, P. C., 1885.
 Brown, B. S., 1894.
 Brown, F. R., 1903.
 Bryant, F. J., 1893.
 Buck, W. F., 1897.
 Bugbee, D. J., 1882.
 Burbeck, E. W., 1903.
 Burleigh, A. T., 1881.
 *Burleigh, R. F., 1882.
 Burnham, Miss F., 1900.
 Buss, M. G., 1908.
 Butterfield, J. W., 1876.
 *Butterfield, R. C., 1898.
 Buzzell, Miss H., 1898.
 Calderwood, H. H., 1901.
 Campbell, P. A., 1904.
 Campbell, W. C., 1906.
 Carlisle, L. A., 1908.
 Carpenter, L. J., 1882.
 *Carr, M. B., 1888.
 Carson, J. W., 1877.
 Cash, J. D., 1908.
 Caverno, Miss B. E., 1898.
 Chamberlin, A. F., 1876.
 Chapin, R. C., 1879.

- Chesley, J. H., 1905.
 Chesley, Miss M. A., 1908.
 *Chubert, C. O., 1877.
 Clark, J. D., 1906.
 Clement, C. E., 1906.
 Clement, H. E., 1899.
 Clough, A. W. (2 year), 1906.
 Clough, F., 1908.
 Colby, F. H., 1889.
 Colby, I. A., 1899.
 Colburn, A. W., 1897.
 Cole, E. G., 1891.
 Comings, Miss C. L., 1897.
 Comings, F. P., 1883.
 *Comings, Miss M. E., 1897.
 Cone, C. F., 1908.
 Conradi, Albert; M. S., 1902.
 Converse, E. L., 1906.
 Corbett, B. A., 1898.
 Cory, M. M., 1908.
 Courser, C. H., 1900.
 Cragin, L. M., 1879.
 Croghan, J. T., 1908.
 Cross, A. B., 1876.
 *Cummings, E. S., 1884.
 Currier, W. S., 1887.
 Curtis, F. P., 1875.
 Cushman, R. L. (2 year), 1901.
 Davis, E. G., 1903.
 Davis, F. A., 1886.
 Davis, F. C., 1884.
 Davis, H. G., 1888.
 Dean, A. L. (2 year), 1907.
 Dearborn, N.; D. Sci., 1901.
 DeMerritt, Miss K., 1908.
 Dennett, I. L., 1897.
 Dewey, E. P., 1882.
 Dimond, O. C., (2 year), 1906.
 Dickey, H. H., 1907.
 Dodge, C. A., 1907.
 Dodge, C. O., 1905.
 Doe, Miss M., 1902.
 Dorr, Miss A. E., 1901.
 Dunn, A. G. (2 year), 1905.
 Durell, F. J. (2 year), 1900.
 Durgin, A. C., 1898.
 *Edwards, C. A., 1877.
 Eldredge, F. E., 1873.
 Elliott, H. A. (2 year), 1900.
 Ely, F. D., 1881.
 Emerson, F. J., 1885.
 Emerson, F. V., 1875.
 Emery, S. E., 1881.
 Evans, H. W., 1901.
 Evans, W. W., 1908.
 Everett, R. M., 1901.
 Farr, C. W., 1904; (2 year), 1902.
 Farwell, H. G., 1901.
 Farwell, O. L., 1908.
 *Flint, W. F., 1877.
 Flint, W. P. (2 year), 1904.
 Everett, R. M., 1891.
 Follansbee, F. H., 1883.
 Foord, J. A., 1898.
 Forristall, E. H., 1897.
 Forristall, R. W. (2 year), 1906.
 Foster, S. M., 1884.
 Foye, Miss B. M., 1900.
 Franklin, N. S., 1906.
 French, A. C., 1883.
 French, H. F., 1908.
 Frink, S. (2 year), 1907.
 Fuller, C. T., 1906.
 Fuller, F. D., 1892.
 Fullerton, J. W., 1898.
 Gay, J. E., 1883.
 Gerrish, E. C., 1888.
 Gillis, L. C., 1889.
 Gilmartin, E. W., 1902.
 Given, A., 1898.
 Gooch, W. S., 1906.
 Goodrich, J. E., 1904.
 Gowen, Miss E. G., 1901.
 Gowen, R. E., 1906.

- Gowing, H. N. (2 year), 1905.
 Gunn, F. W., 1894.
 Hall, C. C., 1877.
 Hancock, E. H., 1898.
 Hardy, A. W., 1887.
 Hardy, C. W., 1875.
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 Hargreaves, S. (2 year), 1906.
 Harvey, J. E., 1886.
 Hayden, S. B., 1905.
 Hayden, W. D. F., 1899.
 Hayes, H. L., 1905.
 Hayes, L. D., 1897.
 Hayes, Miss M. L., 1898.
 Hayes, W. C., 1905.
 Hazen, A., 1885.
 Hazen, C. H., 1881.
 Hazen, W. N., 1888.
 Heath, F. H., 1905.
 Henry, J. G., 1877.
 Hewitt, C. E., 1893.
 Hickey, W. P. (2 year), 1907.
 Hill, G. H., 1904.
 Hill, H. E., 1894.
 Hill, S. F., 1908.
 Hills, E. A. (2 year), 1900.
 Hills, G. F. (2 year), 1902.
 Hirakawa, T., 1898.
 *Hollister, C. P., 1877.
 Holman, G. M., 1877.
 Holmes, G. A. (2 year), 1908.
 *Holmes, N. C., 1879.
 Hood, C. H., 1880.
 Horton, F. L., 1899.
 Hough, A. B., 1892.
 Howe, F. W., 1894.
 Hubbard, C. A., 1877.
 Hubbard, C. L., 1893.
 Hunt, C. A., 1901.
 Hunt, J. N., 1897.
 Hunt, W. E., 1899.
 Huse, M. C., 1908.
 *Hutchinson, L. J., 1889.
 Ingham, H. E., 1907.
 James, O. M., 1893.
 Jenkins, E. D., 1897.
 Jenness, C. F., 1906.
 Jewell, H., 1875.
 Jewett, J. Y., 1890.
 Jewett, E. P., 1901.
 Johnson, A. M., 1906.
 Kampe, F. H. C. (2 year), 1907.
 Kelley, E. D., 1883.
 Kendall, J. C., 1902.
 Kenney, L. H.; M. E., 1906.
 Keown, R. McA., 1901.
 *Kilburn, E., 1878.
 Kimball, H. H., 1884.
 Kimball, W. W., 1876.
 Kirkpatrick, W. R., 1908.
 Kittredge, L. H., 1896.
 *Knight, H. N., 1905.
 Knowles, A. C. (2 year), 1900.
 Lane, F. D., 1907.
 Laton, T. J., 1904.
 *Leavitt, C. O., 1875.
 Lee, H. M., 1902.
 Littlefield, H. T. (2 year), 1908.
 Littlefield, R. A., 1907.
 Livermore, A. A., 1902.
 Loveland, G. A., 1882.
 Lunt, R. L., 1904.
 Lyon, E. E., 1901.
 *McGregor, J. L., 1875.
 Mann, M. B., 1884.
 Manning, G. G. (2 year), 1903.
 Mark, Miss G. A., 1899.
 Marston, F. P., 1881.
 Mason, J. W., 1882.
 Mason, W., 1897.
 Martin, C. W. (2 year), 1898.
 Mathes, C. E. P., 1900.
 Mathes, H. C., 1898.

- Megrath, W. A., 1881.
 Merrill, A. R., 1904.
 Merrill, G. E., 1902.
 Moore, G. M., 1884.
 Moore, H. F., 1898.
 Moreton, J. W., 1905.
 Morgan, A. B., 1883.
 Morgan, G. A., 1898.
 Mudgett, O. D., 1905.
 Mullins, G. M., 1885.
 Nelson, E. E., 1900.
 Nichols, H. A., 1882.
 Nixon, J. H., (2 year), 1903.
 Norcross, A. Z., 1899.
 Norris, J. L., 1889.
 Norris, Z. A., 1884.
 Noyes, B. C., 1907.
 O'Connor, J. J., 1908.
 O'Gara, E. D., 1888.
 Otis, A. N., 1903.
 Page, J. C., 1908.
 Parker, D. D., 1876.
 Parker, F. C., 1879.
 Parker, L. A., (2 year), 1907.
 Payne, C. A., 1902.
 Pearson, R. H. (2 year), 1900.
 Peck, E., 1875.
 Penneo, G. J., 1901.
 Perkins, L., 1871.
 Perley, G. A., 1908.
 Pettee, Miss S., 1908.
 Pettee, H. J., 1905.
 Pettee, Miss A., 1900.
 Pike, A. M., 1905.
 Porter, G. E., 1888.
 Powers, J. G., 1907.
 Preston, J. F., 1890.
 Priest, J. H., 1908.
 Purrington, W. F., 1906.
 Putney, F. S., 1905.
 Putney, H. N., 1899.
 Quimby, W. E. (2 year), 1902.
 Ramsey, I. W., 1875.
 Randall, F. W., 1907.
 Randall, J. L.; M. S., 1906.
 Record, C. E., 1878.
 Richardson, H. P., 1898.
 Richardson, S. A., 1904.
 Roberts, E. J., 1906.
 Robertson, Miss M. L., 1900.
 Robinson, W. O.; M. S., 1906.
 Rollins, R. H., 1903.
 Ruevsky, B. S., 1886.
 Runlett, E. P., 1902.
 Runlett, H. M., 1901.
 *Russell, H. U., 1905.
 Sanborn, E. Q., 1890.
 Sanborn, F. D., 1898.
 Sanborn, G. A., 1887.
 Sanborn, L. E. (2 year), 1907.
 Sanborn, M. H., 1908.
 Sanders, C. H., 1871.
 Sargent, G. J., 1888.
 Savage, E. S., 1905.
 Savage, H. N., 1887.
 *Sawyer, H. A., 1874.
 Sawyer, R. S. (2 year), 1906.
 Scott, C. W. E., 1889.
 Seward, O. L., 1875.
 Shaw, R. H., 1897.
 Shipley, W. N., 1900.
 Shurbert, H. M. (2 year), 1904.
 Simpson, Miss E. L., 1899.
 Slack, C. I., 1890.
 Smalley, D. F., 1908.
 Smith, A. W., 1893.
 Smith, F. W., 1898.
 Smith, J. F., 1873.
 Smith, J. W., 1888.
 Stanton, F. T., 1881.
 Stewart, M. A., 1903.
 Stickney, V. H., 1881.
 Stillings, C. E., 1900.
 Stone, D. E., 1889.

- Stone, E. M., 1892.
 Stone, E. P., 1891.
 Stratton, L. C. (2 year), 1897.
 Straw, A. E., 1901.
 Sullivan, A. L., 1902.
 Swain, R. F. (2 year), 1903.
 Swain, R. V., 1906.
 Swanson, Miss C. C., 1905.
 Tarbell, C. B., 1908.
 Tenney, W. P. (2 year), 1902.
 Thompson, E. C., 1884.
 *Thompson, F. E., 1882.
 Thurber, M. F., 1886.
 Tinkham, F. A., 1905.
 Tolles, B. D., 1898.
 Townsend, Miss E. S., 1907.
 Trow, C. A., 1895.
 Tucker, C. H., 1873.
 Tucker, E. E. (2 year), 1907.
 Tuttle, C. L., 1906.
 Verder, H. D. (2 year), 1901.
 Vickery, C. W., 1897.
 Wadleigh, R. E., 1908.
 Waite, G. L., 1908.
 Waldron, B. L., 1887.
 Walker, G. E., 1888.
 Walker, H. D., 1908.
 Wallace, S. A., 1881.
 Washburn, F., 1889.
 Wason, E. H., 1886.
 Watson, D. A., 1903.
 Watson, Miss L. S., 1907.
 Weeks, T. N. (2 year), 1902.
 Wheeler, C. A., 1877.
 Wheeler, D. A., 1897.
 Wheeler, G. H. (2 year), 1898.
 Whitcher, G. H., 1881.
 White, F. A., 1872.
 White, M. J., 1903.
 Whittemore, E., 1877.
 Whittemore, E. S., 1897.
 Whittier, R. E. (2 year), 1902.
 Whittier, W. L., 1883.
 Wilkins, G. H., 1879.
 Willard, E. M., 1875.
 Wilson, E. C. (2 year), 1902.
 Wilson, J. E., 1900.
 Wood, A. H., 1885.
 Wood, G. P., 1886.
 Woodman, F. W., 1908.
 Woodward, A. J., 1907.
 Woodward, C. M., 1883.
 Wright, C. S. (2 year), 1907.
 Wright, R. M., 1900.

*Dead

SPECIMEN ENTRANCE EXAMINATION PAPERS FOR FOUR YEAR COURSES.

ENGLISH.

The purpose of this examination is to test (1) the candidate's knowledge and appreciation of certain specified works, and (2) his ability to write correctly. As bearing on the latter point, he is advised to go over his paper carefully before the end of the time allowed, correcting any inaccuracies, not neglecting capitals and punctuation.

- I. (1) Give and illustrate the rules for the comma.
(2) Discuss the use of quotation marks.

II. Arrange in chronological order and name the authors of the following works: Silas Marner, Macbeth, The Sir Roger de Coverly Papers, The Passing of Arthur, Life of Goldsmith, Ivanhoe and The Ancient Mariner.

- III. Write not less than 200 words upon two of the following topics:

The Phantom Ship and its Passengers.

The Moral Degeneration of Macbeth.

Sir Roger de Coverly at the Theatre.

Caesar's Behavior on the Day of his Death.

The Plot of Silas Marner.

- IV. Discuss fully and carefully four of the following topics:
The topic sentence and its development.
The respective advantages of the long sentence, the periodic sentence, the balanced sentence.
Unity in the paragraph.
Coherence in the composition.
Emphasis in the sentence.

- V. Quote at least ten lines from Milton.

AMERICAN HISTORY.

1. Give an account of the principal discoveries, explorations and settlements, made previous to 1607, within the present mainland limits of the United States, by (a) The Northmen, (b-c) The Spanish, (d) The French, (e) The English.

2. Give an account of the American share in the following:—
(a) King William's War, (b) Queen Anne's War, (c) King George's War, (d-e) The French and Indian War.

3. Give a brief account of (a) the Stamp Act, (b) the boundaries of the United States according to the Treaty of 1783, (c-d) the nature and history of the Articles of Confederation,

(e) Financial condition of the United States under the Articles of Confederation.

4. Explain the following questions which have been connected with issues since 1865:—(a-b) The conflict over reconstruction, (c) The race problem, (d) The silver coinage struggle, (e) The Venezuelan affair, 1895.

5. Select two subjects from the following and write at least fifty words upon each:—(a) Early education in America; (b) The virtues and limitations of Quakers and Puritans; (c) Patriotism and lack of patriotism during the Revolution; (d) Clay's character and services; (e) The Know-Nothing Party.

6. Give the substance of the last three amendments to the Constitution.

ANCIENT HISTORY.

1. Islands about Greece:—(a) Three important islands or groups in the Aegean; (b) The important island near the eastern coast; (c) Some important island near the western coast; (d-e) The historically important island midway between Greece and Egypt. The important traditions and early history of that island.

2. (a) History and influence of the Delphian oracle. (b) Three classes of people in Sparta. (c-d) Government of Sparta. (e) Myth of Lycurgus.

3. The Persian Invasion:—(a) Brief account of principal expedition sent by Darius; (b-c) Brief accounts of the four important battles resulting from the invasion of Xerxes; (d-c) Outline of collateral reading on the Persian Invasion.

4. Outlines of life and public services:—(a) Pericles; (b) Alcibiades; (c) Socrates; (d) Xenophon; (e) Epaminondas.

5. (a) The causes in Rome leading to the establishment of the tribunate; (b-c) The history and character of the laws of the twelve tables. (d) the war with the Greeks (Pyrrhus). (e) Roman road making.

6. (a-c) Brief outlines of the three wars between Rome and Carthage. (d) The Roman provincial system. (e) Brief accounts of Marius and Sulla.

7. Some account of five books used for collateral reading in Ancient History.

ENGLISH HISTORY.

1. (a-c) Outline map showing the situation of England, the form of the coast, five important rivers, and five important places.

(d) The early Germans: home, customs, institutions.

- (e) The English conquest; purpose and manner of coming of the English; principal events.
- 2. The Hundred Years' War.
 - (a) Accession of Edward III: character; causes for trouble between England and France; preparations for war.
 - (b-c) Course of war to 1377: important events; Treaty of Bretigny; causes for English success; renewal of war; state of affairs at close of reign.
 - (d-e) Renewal of war by Henry V: causes; condition of France; Agincourt; Treaty of Troyes; Joan of Arc; close of the war.
- 3. England under the Tudors, 1485-1558.
 - (a) The House of Tudor: characteristics; policy.
 - (b) The establishment of despotism: measures of Henry VII; condition of the country; position of Parliament; reasons for acceptance of Tudor despotism.
 - (c) The new learning in England: character of the English movement; leaders; connection with Reformation.
 - (d) The Reformation under Henry VIII.
 - (e) The Catholic Reaction under Mary.
- 4. Wars of Empire, 1689-1815.
 - (a) Battle of the Boyne. (b) King William's War. (c) Queen Anne's War. (d) King George's War. (e) Strife for the Ohio Valley.
- 5. War of the French Revolution. (a) The French Revolution. (b-c) War to Peace of Amiens. (d-e) Trafalgar. Waterloo.

MEDIAEVAL AND MODERN HISTORY.

- 1. Give an outline of the history of Kingdom of the Ostrogoths.
- 2. Explain the meaning of each of the following words: Janizaries, reliefs, escheats, aids, villeins.
- 3. What were the characteristics which distinguished the early Teutons.
- 4. Give an account of the Third Crusade.
- 5. In one hundred words give the history of Spain from A. D. 700 to A. D. 1500.
- 6. Give the history of the Russo-Turkish War of 1877-78.
- 7-8. Write a sketch of each of the following:—Wallenstein, Richelieu, Colbert, Garibaldi.
- 9. Locate each of the following and describe some historical event connected with the place:—Narva, Versailles, Trafalgar, Sadowa.
- 10. Draw a map showing the political divisions in the south-east of Europe.

ENTRANCE ALGEBRA.

1. State the general laws for exponents in multiplication and division.

2. Perform the indicated operations and simplify

$$(a+b+c+d)^2 - (a-b-c-d)^2$$

3. Divide

$$8x^{m+4} - 18x^{m+3} - 13x^{m+2} + 9x^{m+1} + 2x^m \text{ by } 4x^m + x^{m-1} - 2x^{m-2}$$

4. A father is four times as old as his son, but in 24 years the father will be only twice as old as the son. What is the present age of each.

5. Write the factors of

$$14a^4b + 21a^3b^2 - 35a^2b^3 - 42ab^4$$

$$15c^2 + 22cx + 8x^2$$

$$x^5 - y^5$$

6. (a) Change to an equivalent fraction having the lowest com-

mon denominator $\frac{1}{x+1} + \frac{1}{(x+1)^2} + \frac{1}{(x+1)^3}$

(b) Simplify $\frac{m-5x}{m+5x} + \frac{10mx}{m^2-25x^2}$

7. Solve for x $\frac{1}{x+1} + \frac{1}{x+2} = \frac{1}{x+3}$

8. Solve for x $\begin{cases} 3x^2 - 8x - 16 = 0 \\ \frac{a+x}{a-x} = \frac{x-2a}{x+2a} \end{cases}$

9. Expand by the binomial theorem $(2x + 4b)^4$

10. (a) Simplify $\frac{c}{x} \sqrt{\frac{x^4}{c^3}} ; \frac{2}{m^2} \sqrt[3]{\frac{54m^4}{x}}$

(b) Multiply $\sqrt{-5x} ; \sqrt[3]{-8ax^3} ; \sqrt[4]{81abx^7}$

(c) Multiply $-\sqrt{2c} ; -3\sqrt{-2a} ; +2\sqrt{-3b} ; +a\sqrt{3c} ; -2\sqrt{bc}$

PLANE GEOMETRY.

1. Prove that if two oblique lines drawn from a point in a perpendicular cut off equal distances from the foot of the perpendicular, they are equal.

2. Prove that if two parallel lines are cut by a third line the alternate interior angles are equal.

3. The exterior angle at base of an isosceles triangle equals 125 degrees, what are the angles of the triangle?

4. Prove that the three bisectors of the angles of a triangle meet at a point.

5. Prove that the diagonal of a parallelogram divides the

figure into two equal triangles.

6. Prove that the sum of the interior angles of any polygon is equal to two right angles, taken as many times less two as the figure has sides.

7. In equal circles two angles at the centre have the same ratio as their intercepted arcs when the arcs are incommensurable.

8. The arc intercepted by a tangent to a circle and a diameter is 75 degrees, what is the angle between the tangent and the produced diameter?

9. Construct a mean proportional to two given lines.

10. Prove if a straight line divides two sides of a triangle proportionally, it is parallel to the third side.

SOLID GEOMETRY.

1. If a line is perpendicular to each of two lines at their point of intersection, it is perpendicular to the plane of the two lines.

2. If a line is perpendicular to a plane, any plane passing through the line is perpendicular to the plane.

3. The sum of the face angles of a convex polyedral angle is less than four right angles.

4. A plane passed through the diagonally opposite edges of a parallelopiped divides it into two equivalent triangular prisms.

5. A triangular prism may be divided into three equivalent triangular pyramids.

6. The lateral surface of the frustum of a regular pyramid is equal to one-half of the product of the slant height by the sum of the perimeters of the bases.

7. The surface of a sphere is equal to the area of four great circles.

8. The measure of a spherical angle is the arc of a great circle described from its vertex as a pole, included between its sides produced if necessary.

9. The area of a spherical triangle is equal to the product of the spherical excess by a tri-rectangular triangle.

10. The angles of a spherical triangle are the supplements of the sides opposite in the polar triangle.

PLANE TRIGONOMETRY.

1. Define cosine, tangent, secant, anti-tangent, radian.
2. Change $3\frac{3}{5} \pi$ to degrees ; 38° to radians.
3. Determine sine, cosine and tangent of 30° ; of 45° .
4. Prove $\sin 2x = 2 \sin x \cos x$.
5. Prove $\sin 2x = \frac{2 \tan x}{1 + \tan^2 x}$
6. The sign of an angle is $2/7$. Find remaining functions of same angle.
7. In a right angled triangle one angle is 25° . The hypotenuse is 340. Write formula for side opposite the given angle.
8. In an oblique angled triangle, given the three sides ; write formulas for area and one angle.
9. $\sin 2x - \tan x = 0$. Solve for x .

PHYSICS.

1. Tell what you can of the standards of length, mass and time. What is meant by fundamental units? Distinguish between the gram as a unit of mass, and as a unit of force. Define force and the components of a force. How do you account for the variation in the gravitational units of force as we go from one locality to another?

State and illustrate Newton's laws of motion. State the laws of hydrostatics. State Archimedes' principle. Explain the construction of a simple barometer, and outline carefully the principles upon which its theory is based. Explain why high mountain climbing often causes pain and bleeding in the ears and nose. State the Kinetic Theory of Gases. State the simple machines. Explain the siphon.

2. What is the distinction between heat and temperature? State the effects of heat. Illustrate each. Explain what is meant by saturated and unsaturated vapors, and give their laws.

What is meant by "Absolute Zero?" How do you account for the protection of fish life in winter? What provision is made in steel bridges for the changes due to temperature variations? Distinguish heat of fusion and heat of vaporization. State the principles upon which the ventilation of houses depends.

3. Account for the difference in the intensity of shadows formed by opaque bodies. What is meant by diffusion of light? by reflection? by refraction? the critical angle? a continuous spectrum? Draw sketches to show the formation of images produced by concave mirrors and lenses. Explain the simple microscope. Account for the formation of the rainbow.

4. State the sources of sound, and the characteristics of media by which it is transmitted. Distinguish longitudinal and transverse wave motion. State the characteristics of musical sounds. Define each. Define an echo, resonance, a tone, a harmonic, and sympathetic vibrations. Outline the use of the lips, tongue and teeth in the production of the vowels and consonants.

5. Devise an experiment to show that a piece of iron attracts a magnet just as truly as the magnet attracts the iron. What is meant by a magnetic line of force? a field of force? by the declination of a compass needle? Devise an experiment to show conclusively the existence, simultaneously, of two unlike kinds of electrification when it is produced by friction. Explain the electrophorous. State the effects of an electric current. Describe a simple voltaic cell and tell why it may rapidly run down. State a rule for determining the polarity of a magnet made by placing around it a coil of wire carrying a current.

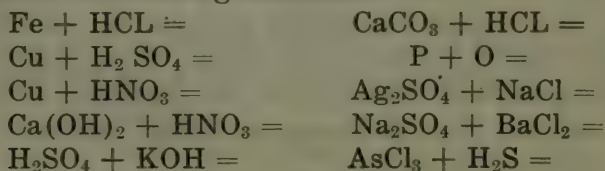
CHEMISTRY.

1. Define Synthesis, Efflorescence, a base, polymerism, reduction.

2. Give the occurrence in nature and properties of nitrogen and enumerate some of its commercial compounds.

3. If the valence of an element x is 1 write the simplest formula for its carbonate, nitrate, borate and sulphite.

4. Complete the following reactions :



5. If one liter of Hydrogen is mixed with 1500 c.c. of Oxygen and the mixture exploded what gas and how much remains unacted upon?

6. How many grains of Ammonium Hydroxide is needed to neutralize 294 grains of sulphuric acid?

7. Give the commercial source, method of preparation and uses of NH_3 .

8. Briefly describe two methods of determining molecular weights.

9. Give the occurrence and properties of zinc and describe the method of preparing the metal from its sulphide.

10. State the Law of Mass Action ; the Law of Dulong & Petit ; the Law of Definite Proportions ; the Periodic Law.

Atomic weight of nitrogen = 19.

“ “ “ sulphur = 32.

ZOOLOGY.

1. Define a Protozoan and name two animals which belong to this class.
2. Give the internal structure of an earthworm. How does the earthworm differ from the Coelenterales and Arthropods?
3. Define and describe an insect. How does an insect breathe, and where are its organs of smell and excretion?
4. What is meant by Evolution? How is one species supposed to give rise to another?
5. Define hermaphrodite, hybrid, parasite, mimicry, Aves.
6. Name one animal from each of the following orders,—Mollusca, Arthropoda, Mammalia, Echinodermata and Pisces.

ELEMENTARY BOTANY.

1. Define calyx, petal, stamen, ovary, spike, tendril.
2. What is meant of self-pollination? Cross-pollination? Give an example of each. Name three agencies of cross-pollination.
3. Describe an exogenous stem as seen in cross-section. How does it differ from an endogenous stem?
4. Define tuber, bulb, stolon, bract, internode, petiole. Give an example of each.
5. Define respiration. Define photosynthesis. Compare the two as to necessary conditions, products and value to plant.
6. What are the following and what part does each play in the life of the plant: transpiration, stoma, epidermis, chlorophyll, protoplasm?
7. Give the meaning of the following: plumule, cotyledon, radicle, testa, legume.
8. Describe the form, structure and reproduction of a particular cryptogamous or flowerless plant.

GEOLOGY.

1. Describe the destructive and constructive work of a glacier. What characters of a land surface indicate the action of glaciers during some past age?
2. How are mountains formed? Diagram.
3. Define—continental shelf, anticline, talus, stratum, delta.
4. How is coal formed? What different kinds are there and how are they formed?
5. How is soil formed? Name all the agencies which aid in soil formation.
6. For what was the Triassic period noted? Describe some of the animals and plants then living.

7. How are coral reefs formed? What is an atoll?
8. Define a fossil. Name several of the more common ones.

FRENCH.

1. Where have you studied French? How long? What books have you read?

2. Synopsis simple and compound tenses:

(1) Third person singular of aller.

(3) Second person plural of faire.

3. Conjugate:—

(1) Present of recevoir.

(2) Future of venir.

(3) Conditional of vouloir.

4. Principal parts of italicized verbs in 6, 7 and 8.

5. Translate:—

(1) Should I study well, the master would be glad.

(2) Durham, September 3, 1907. (Write out date).

(3) I have not received any money.

(4) When he comes, he will tell me what he has done.

(5) You must remain at home today.

(6) Although he is poor, he is happy.

(7) Have you finished your lessons? I have finished them.

(8) How long have you been here?

(9) I have been here for three days.

(10) Give me some black coffee, if you please.

6. Translate:—

Un célèbre médecin avait soigné un petit enfant pendant une maladie dangereuse. La mère reconnaissante arrive chez le sauveur de sons fils. "Docteur, *dit-elle*, il y a des services qui ne se payent pas. Je ne *savais* comment reconnaître vos soins. J'ai pensé que vous *voudriez* bien accepter ce porte-monnaie que j'ai brodé de ma main.—Madame, répliqua un peu rudement le docteur, la médecine n'est pas une affaire de sentiment et nos soins veulent être rémunérés en argent. Les petits cadeaux *entretiennent* l'amitié mais ils n'entretiennent pas nos maisons. —Mais docteur, dit la dame surprise et blessée, parlez, fixez un chiffre.—Madame, c'est deux mille francs." La dame ouvre le porte-monnaie, en tire cinq billets de banque de mille francs, en donne deux au médecin, remet les trois autres dans le porte-monnaie, salue froidement et se retire.

7. Translate:—

Enfin, ayant *attendu* jusqu'à près de neuf heures, l'ennemi arrivant à pas accélérés, et les ponts ne *pouvant* plus servir

qu'aux Russes si on différait davantage, il se décida, le coeur navré, et détournant les yeux de cette scène affreuse, à *faire mettre* le feu. Sur-le-champ des torrents de fumée et de flammes enveloppèrent les deux ponts, et les malheureux qui étaient dessus se précipitèrent pour n'être par entraînés dans leur chute. Du sein de la foule qui n'avait point encore passé, un cri de désespoir s'éleva tout à coup: des pleurs, des gestes convulsifs s'apercevaient sur l'autre rive. Des blessés, de pauvres femmes tendaient les bras vers leurs compatriotes qui s'en allaient, forcés malgré eux de les abandonner.

8. Translate:—

Mais leur douleur bruyante produisait moins d'impression que le désespoir meut d'un personnage qui attirait tous les regards. C'était le malheureux père, qui allant d'un cadavre à l'autre, soulevait leurs têtes souillées de terre, baissait leurs lèvres violettes, *soutenait* leurs membres déjà roidis, comme pour leur éviter les cahots de la route. Parfois on le voyait *ouvrir* la bouche pour parler, mais il n'en sortait pas un cri, pas une parole. Toujours les yeux fixés sur les cadavres, il se heurtait contre les pierres, contre les arbres, contre tous les obstacles qu'il recontrait.

ELEMENTARY GERMAN.

I. Translate.

Frau Biesendahl. Herr Oberlehrer, Sie wissen, dass wir auf eine sehr gute Erziehung halten und dass wir jede Roheit von *unseren Kindern* fernzuhalten suchen. Mein Mann ist Beamter und ich bin die Tochter eines Zollassistenten, da brauch' ich wohl nicht erst zu sagen, dass die Kinder bei uns im Hause niches Schlechtes hören. Herr Flemming erlaubt sich aber Ausdrücke gegen die Kinder, die einfach empörend sind.

II. Translate.

Sie *sprachen* nichts mehr; sie gingen stumm neben einander zum See hinab. Die Luft war schwül, im Westen stieg schwarzes Gewölk auf. "Es wird gewittern," sagte Elisabeth, indem sie ihren Schritt *beeilte*, Reinhardt nickte, und beide gingen rasch am Ufer entlang bis sie ihren Kahn *erreicht* hatten.

Während der Überfahrt *liess* Elisabeth ihre Hand auf dem Rande des Kahnes ruhen. Er blickte beim Rudern zu ihr hinüber, sie aber sah an ihm vorbei in die Ferne. So glitt sein Blick herunter und *blieb* auf ihrer Hand; und die blasse Hand *verriet* ihm, was ihr Antlitz ihm *verschwiegen* hatte.

III. Translate.

"Thue das nicht!" sagte die Nachtigall. "Der hat ja Gutes

gethan, so lange er konnte! Behalte ihn nur! Ich aber kann im Schlosse nicht wohnen, lass mich daher kommen, wenn ich selbst Lust habe, da will ich des Abends auf diesem Zweige sitzen und dir etwas vorsingen, damit du froh werden kannst! Ich komme weit herum, zu Armen und Reichen, zu Glücklichen und Unglücklichen und werde dir von vielem singen können, was in deinem Reiche *passiert* und dir *verborgen bleibt*. Aber eins musst du mir versprechen."—"Alles!" sagte der Kaiser und stand da in seiner kaiserlichen Tracht, die er selbst *angelegt* hatte, und drückte den goldenen Säbel an sein Herz.

IV. Translate.

Als einst der Doktor ein neues Prachtwerk mitgebracht hatte und mit Freude wahrnahm, wie Marie mit einer gewissen Ostentation das Gespräch mit *dem Grafen* abbrach, um sich an einem Seitentisch von ihm über die abgebildeten Antiken belehren zu lassen, bemerkte der edle Magyar *der Kanzleirätin*, er für seinen Teil hege nicht das mindeste Interesse für den alten Plunder und überlasse dergleichen Sachen den Herren Gelehrten, worauf die Kanzleirätin erwiderte, sie finde das sehr begreiflich; ein Kavalier wie Graf Csanady habe eben eine andere Sphäre als die Bourgeoisie.

V. Prin. parts italicized verbs in II and III.

VI. Translate:

1. Yesterday the day was very beautiful.
2. I took a book and went into the garden to study.
3. The fisherman's dog came out of the hut.
4. I gave him bread: it pleased him.
5. Then he fetched the fisherman from the house and we went to the river to fish.
6. These old soldiers will sleep, but the young king will not see them.
7. The old woman has become very angry.
8. I put the clock on the table at half past eight.
9. If he were here he would go to the theatre.
10. He speaks as if he had much money.

VII. Decline italicized words in I and IV.

VIII. Give synopsis 3rd sing. simple and compound tenses of *gehen*.

Decline pres. dürfen: wollen: lehren: geben: versprechen.

LATIN ELEMENTARY.

I. Translate into idiomatic English:—

Flumen est Arar, quod per fines Aeduorum et Sequanorum

in Rhodanum influit, incredibili lenitate, ita ut oculis, in utram partem fluat, iudicari non possit. Id Helvetii ratibus ac lintribus iunctis transibant. Ubi per exploratores Caesar
 5 certior factus est, tres iam partes copiarum Helvetios id flumen traduxisse, quartam fere partem citra flumen Ararim reliquam esse, de tertia vigilia cum legionibus tribus e castris profectus ad eam partem pervenit, quae nondum flumen transierat. Eos impeditos et inopinantes aggressus magnam
 10 partem eorum concidit; reliqui sese fugae mandarunt atque in proximas silvas abdiderunt. (Caesar. Gallic War: Book I.)

II.

Decline fines (line 1) certior (line 5) flumen (line 6)

Syntax of lenitate (line 2) oculis (line 2) legionibus (line 7)

Explain mode of possit (line 3) traduxisse (line 6)

Compare proximas (line 11)

III. Translate into idiomatic English:—

Qua consuetudine cognita Caesar, ne graviori bello occurreret, maturius, quam consuerat, ad exercitum proficiscitur. Eo cum venisset, ea, quae fore suspicatus erat, facta cognovit: Missas legationes ab nonnullis civitatibus ad Germanos invi-
 5 tatosque eos, uti ab Rheno discederent, omniaque, quae postulassent, ab se fore parata. Qua spe adducti Germani latius vagabantur et in fines Eburonum et Condrusorum, qui sunt Treverorum clientes, pervenerant. Principibus Galliae evocatis Caesar ea, quae cognoverat, dissimulanda sibi exis-
 10 timavit eorumque animis permulsis et confirmatis equitatuque imperato bellum cum Germanis gerere constituit.

IV. Syntax of Rheno (line 5) sibi (line 9)

Inflect proficiscitur (line 2) and postulassent (line 5)

Prin. parts of consuerat, (line 2) facta (line 3) vagabantur (line 7)

Decline equitatu (line 10) spe (line 6)

Derivation of legationes (line 4) civitatibus (line 4)

V. Translate into Latin:—

- ◆ I. Caesar is about to cross the river in order to attack the enemy.
2. They went from the camp at night.
3. If the Germans should send soldiers to us within two days, we would not proceed against them.
4. Since he knew that the soldiers were ready, he quickly crossed the bridge and advanced into the enemy's territory.

ADVANCED LATIN.

I. Translate into idiomatic English:—

- Hic quis potest esse, Quirites, tam aversus a vero, tam praeceps, tam mente captus, qui neget haec omnia, quae videmus, praecipueque hanc urbem deorum immortalium nutu ac potestate administrari? Etenim, cum esset ita responsum, caedes, incendia interitum rei publicae, comparari, et ea per cives, quae tum propter magnitudinem scelerum non nullis incredibilia videbantur, ea non modo cogitata a nefariis civibus, verum etiam suscepta esse sensistis. Illud vero nonne ita praesens est, ut nutu Iovis optimi maximi factum esse videatur, ut, cum hodierno die mane per forum meo iussu et coniurati et eorum indices in aedem Concordiae ducerentur, eo ipso tempore signum statueretur? Quo collocato atque ad vos senatumque converso omnia quae erant cogitata contra salutem omnium, illustrata et patefacta vidistis. (Cicero. Catiline. III.)

Give reason for mode of neget (line 2) esset (line 4.)

Explain derivation of magnitudinem (line 6) collocato (line 12.)

Syntax of nullis (line 7) civibus (line 8.)

II. Translate into idiomatic English.

- Ut primum cessit furor, et rabida ora quierunt:
Incipit Aeneas heros: Non ulla laborum,
O virgo, nova mi facies inopinave surgit:
Omnia praecepi, atque animo mecum ante peregi.
Unum oro; quando hic inferni ianua regis
Dicitur, et tenebrosa palus Acheronte refuso;
Ire ad conspectum chari genitoris, et ora
Contingat; doceas iter, et sacra ostia pandas.
Illum ego per flammās et mille sequentia tela
Eripui his humeris, medioque ex hoste recepi;
Ille meum comitatus iter, maria omnia mecum,
Atque omnes pelagique minas coelique ferebat
Invalidus, vires ultra sortemque senectae.
Quin, ut te supplex peterem, et tua limina adirem,
Idem orans mandata dabat. Natique patrisque,
Alma, precor, miserere: potes namque omnia; nec te
Nequicquam lucis Hecate praefecit Avernīs.

Scan the following lines, marking principal caesura, etc. Line 1; line 4; line 8.

Explain the form quierunt (line 1) the mode of doceas (line 8.)

Syntax of natique (line 15) lucis (line 17.)

IV. If any one shall accuse me because I have not arrested so wicked a man rather than let him go from the city, that is not my fault, but the fault of the times. Cataline ought to have been killed long ago, but there are very many who defend him and do not believe what I report. If I had punished him by death, his accomplices would have escaped. What crimes have they not committed these years! Would that you knew their plots! There is no nation whom we fear, but we must now contend with all these desperate men.

CATALOG

OF THE

NEW HAMPSHIRE COLLEGE

OF

Agriculture and the Mechanic Arts

DURHAM, NEW HAMPSHIRE

1909-1910



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CALENDAR

1909

1910

1911

JULY

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COLLEGE CALENDAR.

1909.

- Sept. 10-14. Examinations for admission begin Friday at 9 a. m.
 Sept. 15. Registration, Wednesday. First semester begins.
 Oct. 13. Stated meeting of Trustees.
 Nov. 24. College closes Wednesday at 11.50 a. m.

THANKSGIVING VACATION.

- Nov. 30. College opens Tuesday at 8 a. m.
 Dec. 22. College closes Wednesday night.

1910.

CHRISTMAS VACATION.

- Jan. 4. College opens Tuesday at 8 a. m.
 Jan. 12. Stated meeting of Trustees.
 Jan. 31—Feb. 4. Mid-year examinations.

WINTER VACATION.

- Feb. 9. Registration, Wednesday. Second semester begins.
 April 13. Stated meeting of Trustees.
 April College closes Wednesday night preceding Fast Day.

SPRING VACATION.

- April College opens Tuesday following Fast Day at 8 a. m.
 June 7. Senior examinations completed 4 p. m.
 June 8-13. Final examinations.
 June 12. Baccalaureate sermon, Sunday at 10.45 a. m.
 June 13. Prize Drill, 8 p. m., in the Armory.
 June 14. Class Day. Stated meeting of Trustees.
 June 15. Commencement Day. Senior Promenade at 8 p. m.

SUMMER VACATION.

- Sept. 9-13. Examinations for admission begin Friday at 8.30 a. m.
 Sept. 14. Registration, Wednesday. First semester begins.
 Oct. 12. Stated meeting of Trustees.
 Nov. 23. College closes Wednesday at 11.50 a. m.

THANKSGIVING VACATION.

- Nov. 29. College opens Tuesday at 8 a. m.
 Dec. 23. College closes Friday night.

1911.

CHRISTMAS VACATION.

- Jan. 5. College opens Thursday at 8 a. m.
 Jan. 11. Stated meeting of Trustees.
 Jan. 30—Feb. 3. Mid-year examinations.

WINTER VACATION.

- Feb. 8. Registration, Wednesday. Second semester begins.

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Oct. 7, 1897, to Oct. 7, 1912.

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Oct. 9, 1906, to June 14, 1910.

HON. GEORGE H. BINGHAM, A. B., LL. B., Manchester.
Dec. 2, 1908, to Dec. 2, 1911.

RICHARD W. SULLOWAY, A. B., Franklin.
Oct. 9, 1909, to Oct. 9, 1912.

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ESTHER A. PERKINS, *Stenographer.*

MARCIA SANDERS, *Matron of Smith Hall.*

NEW HAMPSHIRE AGRICULTURAL EXPERIMENT STATION.

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HON. E. H. WASON, B. S.,	Nashua
PRES. WILLIAM D. GIBBS, D. Sc., <i>ex officio</i> ,	Durham

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<i>Assistant Horticulturist.</i>
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DAVID LUMSDEN, <i>Assistant in Floriculture.</i>
CHARLES W. STONE, A. M., <i>Farmer.</i>
T. G. BUNTING, B. S. A., <i>Assistant in Vegetable Gardening.</i>
E. H. THOMPSON, B. S. A., <i>Office of Farm Management, U. S. Department of Agriculture, in coöperation on Farm Surveys.</i>
ALBAN STEWART, A. M., <i>Assistant Botanist.</i>
ESTHER LOUISE ADAMS, B. S., <i>Librarian.</i>
NELLIE F. WHITEHEAD, <i>Purchasing Agent.</i>
MIRIAM L. HOBBS, <i>Bookkeeper.</i>
MABEL H. MEHAFFEY, <i>Stenographer.</i>

FOUNDATION AND ENDOWMENT.

The New Hampshire College of Agriculture and the Mechanic Arts was incorporated by the state Legislature in 1866, under the provisions of the act of Congress, approved July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," the grant of land having been accepted by an act of Legislature, approved July 9, 1863.

The act of 1862 provides that the income from the investment of the money realized from the sale of the lands shall be appro-

priated "to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, . . . in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The "Morrill Bill," which was approved August 30, 1890, and received the assent of the state by an act of Legislature, approved February 13, 1891, provides an appropriation for the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of "the act of 1862."

The appropriation under the Morrill act is "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

Under an act of Congress approved March 2, 1887, which received legislative assent August 4, 1887, was established that department of the college known as the Agricultural Experiment Station, the purpose of which was "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

Benjamin Thompson, who died January 30, 1890, was a resident of Durham, and a farmer by profession. He had at heart the agricultural interests of his native state, and in the furtherance of those interests he bequeathed to it at his death his whole estate with a few minor reservations.

Mr. Thompson's final statement of the object of his bequest was as follows: "My object being mainly to promote the improvement of agriculture, though willing that the college to be established should also provide for the mechanic arts, it is my will that the institution to be established by the state . . . shall be called and designated . . . The New Hampshire College of Agriculture and the Mechanic Arts, if that shall be the wish of the state; and that in addition to the instruction to be given therein, as provided by my said will, there shall be taught only such other arts or sciences as may be necessary to enable said state to fully avail itself of said donation of lands

by the government in good faith, which two branches of instruction shall be the leading objects of said institution or college."

By the provisions of the will, the income from this source will not, however, become available until 1910. This endowment will amount at that time to nearly \$800,000, the annual income from which will be about \$32,000.

The state Legislature accepted the Thompson bequest March 5, 1891, and on April 10 of the same year appropriated \$100,000 for buildings. Approximately \$50,000 was realized from the sale of property and from other sources. In 1893 an additional appropriation of \$35,000 was made by the state for completing and furnishing the buildings. Accordingly, in 1893 the college was moved from its first home at Hanover to its present location at Durham.

The general government of the college is vested in a board of thirteen trustees. The governor of the state and the president of the college are trustees, *ex officio*. the alumni of the college elect one trustee; and all other trustees are appointed by the governor of the state, with the advice and consent of the council.

The college is executing the trust reposed in it by giving instruction in the various courses described in this catalog, under the prescribed heads of "agriculture" and "the mechanic arts."

SITUATION.

Durham, the present site of the college, is on the Western Division of the Boston and Maine Railroad, sixty-two miles from Boston, and about midway between Rockingham Junction and the city of Dover. being five miles from the latter place.

SUNDAY SERVICES.

Although the only church in Durham is nominally Congregational, it is attended by citizens of all denominations, and sectarian lines are never drawn. It is conveniently situated, and offers ample opportunity for religious observance.

GENERAL INFORMATION.

New Hampshire College offers the following courses:

1. Agricultural Courses.
 - a. Four Year Course.
 - b. Two Year Course.
 - c. Ten Week Course.

2. Mechanical Engineering Course.
3. Electrical Engineering Course.
4. Chemical Engineering Course.
5. Arts and Science Course.

The college is a part of the public school system of the state. It stands in its agricultural, mechanical engineering, electrical engineering, technical chemistry, and general scientific courses, in the same relation to the high schools that the high schools stand to the grammar schools, and that these in turn stand to the elementary schools. In other words, it is a continuation of the grades of the public school system of the state, with special reference to the industrial pursuits, and aims to give a practical training that shall fit the student to deal with the problems of life.

TUITION AND FEES.

Tuition is \$60 a year; fees, which include all charges commonly considered extras, except those for breakage and damage to college property, are \$20 a year. They are payable in advance in two equal instalments, one on the first day of each semester.

SCHOLARSHIPS.

Scholarships are awarded each semester at the discretion of the faculty to resident students of New Hampshire. They may be forfeited at any time for misconduct and will not be awarded except by special permission of the president, to students in the four year courses who have failed to secure an average grade of sixty or over in the previous semester. They are given for the purpose of aiding deserving students and will be withdrawn from those who use intoxicating liquor or tobacco.

Conant Scholarships.—There are twenty-five Conant scholarships, each paying tuition, \$60, fees, \$20, cash, \$20,—total, \$100. These are assigned under the following conditions:

They are to be given to young men taking the agricultural course.

Each town in Cheshire County is entitled to one scholarship, and Jaffrey is entitled to two.

They will be reserved for their respective towns until August 1 of each year. Those not taken by students from Cheshire County, and those in excess of the number of towns, will then be assigned to agricultural students from other parts of the state, and may be divided at the discretion of the president.

Senatorial Scholarships.—There are twenty-four senatorial scholarships,—one for each senatorial district. Each scholar-

ship is to pay tuition, \$60. Senatorial scholarships not filled may be assigned to students from other localities at the discretion of the faculty; they are open to students in all courses.

Grange Scholarships.—Each subordinate and Pomona Grange in New Hampshire has the privilege of appointing one student annually to a free scholarship in any of the four year or two year courses in the college. Each scholarship is to pay the tuition of \$60. The method of appointment is entirely at the option of the grange; it may be by election, competitive examination, or otherwise. Holders of these scholarships need not be members of the grange.

Valentine Smith Scholarships.—Through the generosity of the late Mr. Hamilton Smith of Durham, the sum of \$10,000 has been given to the college to establish the Valentine Smith scholarships.

“The income thus accruing to the college shall be given to the graduate of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission to the college; *provided*,

“That if the student receiving this scholarship shall at any time prove unworthy, in the judgment of the faculty, by reason of defective scholarship or character, he shall forfeit his claim to the student most deserving; and

“That if the student receiving this scholarship shall cease to be a member of the college, the income from this fund, for the unexpired term, shall be awarded to the student most deserving in character and scholarship.”

By vote of the faculty, these scholarships will be forfeited by failure to obtain an average grade of 75 per cent. for any semester. These scholarships yield \$400 annually or one hundred dollars to each holder. Competitive examinations for this scholarship will be held at the college at the time of the entrance examinations in September, and at no other time. They are not restricted to residents of New Hampshire.

PRIZES.

Bailey Prize.—Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene, N. H., offer a prize of ten dollars for proficiency in chemistry.

Erschine Mason Memorial Prize.—Mrs. Erschine Mason of Stamford, Conn., has invested one hundred dollars as a memorial to her son, a member of the class of 1893, the income of which is to be given, for the present, to that member of the senior class who has made the greatest improvement during his course.

Chase-Davis Memorial Medals.—The Glee Club has offered to furnish yearly a gold medal to the senior who has won his N. H. and stands highest in his studies, and a silver medal to the senior who has won his N. H. and stands second in his studies, the medals to be known as the Chase-Davis Memorial medals.

COLLEGE AID TO STUDENTS.

Students obtain considerable financial aid by janitorships, and work on the farm and in the greenhouse. They also find employment with the power and service department of the college and with the experiment station.

Students may purchase at cost all books, drawing instruments, materials, etc., at the college book-store in Thompson Hall.

ESTIMATE OF FRESHMAN EXPENSES.

Tuition,	Free	\$60.00
Text-books,	\$12.00 to	20.00
Military uniform for new students,	16.00 to	16.00
Drawing instruments and materials,	12.00 to	25.00
Fees,	20.00 to	20.00
Room rent, including heat and light,	30.00 to	60.00
Board, \$2.75 to \$3.50 per week, for thirty-six weeks,	99.00 to	126.50
		<hr/>
Total,	\$189.00	\$327.50

This total does not include incidentals (such as traveling expenses, laundry, etc.).

Room rent is estimated on the supposition that two students occupy the same room or suite of rooms.

The college has no rooms for men students. Rooms may be obtained either furnished or unfurnished, in buildings under private control, and are for the most part provided with heating apparatus, electric lights and baths.

Women students, unless living at home, are required to room in Smith Hall, the woman's dormitory.

Table board is \$3.75 a week and prices for rooms range from \$1.25 to \$2.00 a week. Rooms will be assigned to old students in order of their seniority, and to new students according to their date of application. Applications for rooms should be made to the registrar.

REGISTRATION.

Every undergraduate student who desires to attend the college during a given semester is required to register at the registrar's office before 4 p. m. of the first day of such semester. Every former student registered after the first day of any

semester will be charged for such registration a fine of one dollar for the first day and fifty cents additional for each succeeding day, to be remitted only by the president upon presentation of a substantial excuse for the delay.

ELECTION OF STUDIES.

On or before the Saturday before the last in each semester, every student is required to notify the registrar, in writing, of his elections for the semester following.

Every student who fails to fill out his elective slip on or before the date mentioned is required to pay a fine of one dollar before he can be registered for the studies of the next semester, unless he has previously obtained from the president a written excuse for delay.

Every student who, having made his elections, desires to change, is required to file with the registrar a written statement of the changes desired and his reasons therefor.

No student will be permitted to make changes in courses elected by him after one week from the time of his registration in each semester, except by vote of the faculty and the payment of one dollar.

ATTENDANCE AND EXCUSES.

Every male student, unless a member of the senior or junior class, or unless physically unfit, is required to attend military drill.

Every student is required to attend chapel exercises. A student accumulating more than six unexcused absences from chapel during any semester will be placed on probation.

Attendance upon class work is, in general, under the control of the heads of departments concerned. However, excuses for absence for one day or more, may be obtained of the dean in advance, and should be passed at once to the registrar by the student. Excuses for absence for less than one day should be obtained of the instructors concerned. If excuses are for an indefinite time, the student must report to the registrar within twenty-four hours after his return to his studies, if he wishes to receive credit for his excuses.

In no case will such excuse relieve the student from class work.

Any head of a department may, without faculty action, exclude from examination any student who has been absent from twenty per cent. of the exercises of any class under his charge.

All classes begin at seven minutes after the hour scheduled, and close promptly at the end of the hour.

AMOUNT OF WORK.

No student will be permitted to carry less than sixteen or more than twenty-two credit hours per week of classroom work or its equivalent, without the consent of the faculty.

REMOVAL OF DEFICIENCIES BY EXAMINATION.

A student conditioned on entrance examinations may have an opportunity to make up such deficiencies upon the three days preceding the beginning of each semester, and upon the last Saturday of each semester. A student who takes a deficiency examination upon an entrance subject at any other time must pay the college one dollar for each examination upon each subject.

Every student who has any entrance condition outstanding at the beginning of the third year of residence at the college or more than one at the beginning of the second year will not be allowed to register until such conditions have been removed.

Dates for re-examination in conditioned subjects are fixed at the discretion of the instructor. No requests for examinations will be granted on less than two weeks' notice except on the regular dates for examinations in entrance deficiencies.

 REQUIREMENTS

FOR ADMISSION TO FOUR YEAR COURSES.

All candidates for admission to college must present satisfactory testimonials of good moral character.

Candidates for admission to the freshman class must offer studies amounting to a total of fifteen units.

The equivalent of work done in an approved high school for one year of five recitations a week will be accepted for one unit. However, the work of one year of four recitations a week may be accepted for one unit, provided the work is done in the last two years of a preparatory course.

AGRICULTURAL COURSE.

Candidates for admission who intend to take the Agricultural Course must offer eleven and one-half units from required subjects and three and one-half units from elective subjects, according to the following statement:

(Required) Group A (English)	4	units
" B (American History or Ancient History)	1	unit
" C.. (Algebra and Plane Geometry)	2½	units

(Required) Group D.....(Physics and Biology)	2	units
“ E.....(French or German)	2	units
		<hr/>
	11½	units
(Elective) Groups B to F inclusive.....	3½	units
		<hr/>
Total	15	units

ARTS AND SCIENCE COURSE.

Candidates for admission who intend to take the Arts and Science Course must offer ten and one-half units from required subjects and four and one-half units from elective subjects, according to the following statement:

(Required) Group A (English)	4	units
“ B (American History and Ancient History)	2	units
“ C..(Algebra and Plane Geometry)	2½	units
“ E.....(French or German)	2	units
		<hr/>
	10½	units
(Elective) Groups B to F inclusive.....	4½	units
		<hr/>
Total	15	units

ENGINEERING COURSES.

Candidates for admission who intend to take the Engineering Courses must offer eleven and one-half units from required subjects and three and one-half units from elective subjects, according to the following statement. For the present an elective half unit will be accepted in place of Trigonometry. Students offering Trigonometry for admission will be given an equivalent amount of advanced work:

(Required) Group A (English)	4	units
“ B (American History or Ancient History)	1	unit
“ C (Algebra, Plane and Solid Geometry and Plane Trigonometry)	3½	units
“ D	1	unit
“ E	2	units
		<hr/>
	11½	units
(Elective) Groups B to F inclusive.....	3½	units
		<hr/>
Total	15	units

GROUP A, ENGLISH.

Preparation in English has two main objects: (1) command of correct and clear English, spoken and written; (2) ability to read with accuracy, intelligence and appreciation.

The first object requires instruction in grammar and composition. The second object is sought by means of two lists of books, headed respectively Reading and Study, from which may be framed a progressive course in literature covering four years. A candidate will not be accepted in English whose work is notably deficient in point of spelling, punctuation, phraseology or division into paragraphs.

Reading.—The aim of this course is to foster in the student the habit of intelligent reading, and to develop a taste for good literature, by giving him a first-hand knowledge of some of its best specimens. He should read the books carefully, but his attention should not be so fixed upon details that he fails to appreciate the main purpose and charm of that he reads.

Study.—This part of the requirement is intended as a natural and logical continuation of the student's earlier reading, with greater stress laid upon form and style, the exact meaning of words and phrases, and the understanding of allusions. For this close reading are provided a play, a group of poems, an oration and an essay.

The first part of the examination will be upon the books prescribed for reading, and the form of the examination will usually be the writing of short paragraphs on several topics which the candidate may choose out of a considerable number. It may include also questions upon grammar and the simpler principles of rhetoric.

The second part of the examination will include composition and those books comprised in the list headed Study. The test in composition will consist of one or more essays, developing a theme through several paragraphs; the subjects will be drawn from the books prescribed for Study, from the candidate's other studies, and from his personal knowledge and experiences quite apart from reading.

The books for reading in 1910 and 1911 are:

Group I (two to be selected).

Shakespeare's *As You Like It*, *Henry the Fifth*, *Julius Caesar*, *The Merchant of Venice*, *Twelfth Night*.

Group II (one to be selected).

Bacon's *Essays*; Bunyan's *Pilgrim's Progress*, Part I; The Sir

Roger de Coverley Papers in the Spectator; Franklin's Autobiography.

Group III (one to be selected).

Chaucer's Prologue; Spenser's Faerie Queene (selections); Pope's Rape of the Lock; Goldsmith's Deserted Village; Palgrave's Golden Treasury (First Series) Books II and III, with special attention to Dryden, Collins, Gray, Cowper and Burns.

Group IV (two to be selected).

Goldsmith's Vicar of Wakefield; Scott's Ivanhoe; Scott's Quentin Durward; Hawthorne's House of the Seven Gables; Thackeray's Henry Esmond; Mrs. Gaskell's Cranford; Dickens' Tale of Two Cities; George Eliot's Silas Marner; Blackmore's Lorna Doone.

Group V (two to be selected).

Irving's Sketch Book; Lamb's Essays of Elia; De Quincey's Joan of Arc and The English Mail Coach; Carlyle's Heroes and Hero Worship; Emerson's Essays (selected); Ruskin's Sesame and Lilies.

Group VI (two to be selected).

Coleridge's Ancient Mariner; Scott's Lady of the Lake; Byron's Mazeppa and The Prisoner of Chillon; Palgrave's Golden Treasury (First Series), Book IV, with special attention to Wordsworth, Keats and Shelley; Macaulay's Lays of Ancient Rome; Poe's Poems; Lowell's Vision of Sir Launfal; Arnold's Sohrab and Rustum; Longfellow's Courtship of Miles Standish; Tennyson's Gareth and Lynette, Lancelot and Elaine, and The Passing of Arthur; Browning's Cavalier Tunes, The Lost Leader, How They Brought the Good News from Ghent to Aix, Evelyn Hope, Home Thoughts from Abroad, Home Thoughts from the Sea, Incident of the French Camp, The Boy and the Angel, One Word More, Hervé Riel, and Pheidippides.

The books for study in 1910 and 1911 are:

Shakespeare's Macbeth; Milton's Lycidas, Comus, L'Allegro, and Il Penseroso; Burke's Speech on Conciliation with America, or both Washington's Farewell Address and Webster's First Bunker Hill Oration; Macaulay's Life of Johnson or Carlyle's Essay on Burns.

GROUP B, HISTORY.

Although there are excellent text books in history, adequate preparation cannot be obtained by text book work only. Some collateral work is necessary, whatever text book is used, and with certain text books a large amount is necessary. The de-

tails of the preparatory work in history are fully stated in "A History Syllabus for Secondary Schools," by the New England History Teachers' Association. Boston, D. C. Heath & Co., 1904.

American History and Civics.

The work in Civics must include at least a study of the Constitution of the United States. Representative text books are Channing's Students' History, Hart's Essentials of American History, and Montgomery's Students' History. —1 unit.

Ancient History (Grecian and Roman).

Representative text books are Morey's Greek History, Myers' History of Greece, Allen's Roman People, Morey's Roman History, Myers' Rome, West's Ancient World, and Wolfson's Essentials of Ancient History. —1 unit

English History.

Representative text books are Larned's History of England, Montgomery's English History, and Walker's Essentials of English History. —1 unit.

Mediaeval and Modern History.

Representative text books are Harding's Essentials of Mediæval and Modern History and Myers' Mediæval and Modern History. —1 unit.

GROUP C, MATHEMATICS.

Algebra.

Through quadratic equations, including radicals and fractional and negative exponents, binomial theorem and progressions,—five periods per week for one and one-half years. —1½ units.

Plane Geometry.

The equivalent of Wells' presentation. —1 unit.

Solid Geometry.

The equivalent of Wells' presentation. —½ unit.

Plane Trigonometry.

The equivalent of Wells' presentation. —½ unit.

GROUP D, SCIENCE.

Accompanying the certificates for each of the sciences the student **MUST** present at entrance a note-book containing records and drawings of his or her observations and experiments in the laboratory, which must bear the certificate of the teacher in charge that the work was done personally in the laboratory.

Biology.

Students in the Agricultural Course must present either.

A. Zoölogy.

Kellogg's Elementary Zoölogy, Linville and Kelly's Text Book in General Zoölogy. Jordan, Kellogg and Heath's Animals, Needham's Lessons in Zoölogy, Coulton's Zoölogy, or an approved equivalent, occupying at least four periods per week for a half year, of which at least one is devoted to laboratory work.

— $\frac{1}{2}$ unit.

and Botany.

Bergen's Elements of Botany, or an approved equivalent, occupying at least four periods per week for a half year, of which at least one is devoted to laboratory work.

— $\frac{1}{2}$ unit.

or

B. Botany.

Coulter's Text Book of Botany, Bergen's Foundations of Botany, or an approved equivalent, occupying at least four periods per week for one year, of which at least one is devoted to laboratory work.

—1 unit.

Chemistry.

Elementary Inorganic Chemistry equivalent to the work covered in Remsen's Briefer Course, Hessler & Smith's Essentials. McPherson & Henderson's Elementary Study or Newell's Descriptive Chemistry, accompanied in each instance with laboratory practice.

—1 unit.

Geology.

Leconte's Compend or an approved equivalent.

— $\frac{1}{2}$ unit.

Physics.

The preparation required for entrance in Physics shall be an equivalent of five exercises a week for one year, of which at least two are devoted to laboratory work.

—1 unit.

GROUP E, MODERN LANGUAGES.**French.**

Two years are required for preparation in French. Work of the first year should include (1) careful drill in pronunciation, (2) drill upon the rudiments of grammar, (3) abundant translation of simple English prose into idiomatic French, (4) reading of from 100 to 175 pages of French prose, (5) writing French from dictation. Work of the second year should include (1) the reading of from 250 to 400 pages of easy modern prose, (2) constant practice in translating from English into French varia-

tions of the text read, (3) frequent paraphrases of the text read, (4) dictation. —2 units.

German.

Two years are required for preparation in German. Work of the first year should include (1) careful drill in pronunciation, (2) drill upon the rudiments of grammar, such as the inflection of the articles, the common nouns, adjectives, pronouns and strong and weak verbs, upon the uses of the prepositions, the modal auxiliaries and the rules of syntax and word order, (3) writing from dictation, (4) the reading of from 75 to 100 pages of prose, (5) translation from English into German. Work of the second year should include (1) the reading of from 150 to 200 pages of prose, (2) constant practice in translating from English into German variations of the text read, (3) dictation, (4) continued drill upon the rudiments of grammar, (5) frequent paraphrases of the text read. —2 units.

GROUP F, ANCIENT LANGUAGES.

Students entering from approved schools may receive credit in their certificates for the following work in Greek or Latin:

Greek.

Books I and II of Xenophon's *Anabasis*, Books III and IV of the *Anabasis* or their equivalent in other Attic prose. Two years' work. —2 units.

Latin.

Grammar and four books of Caesar. Two years' work.

—2 units.

Vergil, six books.

Cicero, six orations.

—2 units.

CERTIFICATES.

In place of examinations, certificates will be received from approved preparatory schools, including all that have been approved by the superintendent of public instruction in New Hampshire. Approval of a school will be withdrawn whenever it appears that the work of the school does not reach the standard required by the college. No certificate will be accepted from a private tutor or instructor.

Certificates should meet the requirements in full; in case of exceptions the candidate will be examined on any requirement not covered by the certificate. If the certificate makes any exception in the case of a student who has not regularly graduated from an approved school, the certificate will not be ac-

cepted, and the student will be examined on all the requirements.

Certificates will be accepted for that work only which has been done in the certifying school, or which is necessarily involved in the work done there; work done in the grammar school must not be certified unless reviewed in the high school.

Suitable credit may be given on entrance requirements for properly certified high school work in drawing, shop-work and agriculture; also, for an extra year's work in any required or elective subject, provided after careful examination it is found that this work is additional to that regularly required.

Certificates must be made out on a blank furnished by the college, and should be mailed to the dean at the close of the school year.

Complete Certificates.

The signature of the principal is to be affixed to the general certificate, and to that of each department in which the work of the candidate is certified.

Partial Certificates.

In case the work of a graduate has not been up to certificate grade in one or more subjects, the principal is requested to sign the general certificate, crossing out the words "and that in my judgment he is prepared to enter at once upon the work of the freshman year." He is also requested to fill out the group certificates in full except signature, the signature being attached only to such as indicate certificate grade.

Divided certificates from two or more schools will be accepted when the preparatory work has been done in more than one institution.

Certificate forms will be furnished upon application.

Candidates for advanced standing are also examined in the studies that have been pursued by the class which they propose to enter.

Examinations will be given, in the subjects presented for admission, beginning Friday of the week preceding the opening of the college year. Candidates will present themselves with their credentials at the registrar's office on the first day of the examinations.

SCHEDULE FOR SEPTEMBER ENTRANCE EXAMINATIONS.

Friday, September 9.

Mediæval and Modern History.....	8.30—10.30 A. M.
Algebra	10.30—12.30 A. M.
English	1.30— 3.30 P. M.
Plane Geometry	3.30— 5.30 P. M.

Saturday, September 10.

English History	8.30—10.30 A. M.
Physics	10.30—12.30 A. M.
Latin, elementary	1.30— 3.30 P. M.
Latin, advanced	3.30— 5.30 P. M.

Monday, September 12.

Chemistry	8.30—10.30 A. M.
American History	10.30—12.30 A. M.
French	1.30— 3.30 P. M.
Solid Geometry	3.30— 5.30 P. M.

Tuesday, September 13.

Ancient History	8.30—10.30 A. M.
Plane Trigonometry	10.30—12.30 A. M.
German	1.30— 3.30 P. M.
Botany	3.30— 5.30 P. M.

Wednesday, September 14.

Geology	8.30—10.30 A. M.
Zoölogy	10.30—12.30 A. M.
Greek, elementary	1.30— 3.30 P. M.

REQUIREMENTS FOR GRADUATION FROM FOUR YEAR COURSES.

Those who complete a regular four year course will be recommended for the degree of Bachelor of Science.

No course will be accepted as an equivalent of a regular four year course which does not comply with all the following requirements:

1. The completion of all work common to the four year courses.
2. The completion of one hundred fifty-four credit hours.
3. The completion of all but ten or less credit hours in some one of the regular four year courses.
4. Approval by the faculty not earlier than June 1 preceding the year of graduation.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding commencement; and each member of the class may receive a statement of his standing at the office of the registrar at 2 p. m. on the next day, Wednesday.

All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

THESIS.

A thesis upon some subject connected with the work of the course taken is required of every candidate for a degree. The subject, together with a written approval of it by the head of the department within which it lies, is to be submitted to the president before the 15th day of December preceding graduation. The thesis is to be submitted to the head of the department concerned not later than the second Tuesday preceding commencement day. The thesis is to be completed in typewritten and bound form and be in the hands of the department concerned before the Tuesday preceding commencement day. The thesis is to be typewritten or printed upon standard thesis paper eight and one-half by eleven inches, medium weight, neatly bound in black cloth and gilt-lettered on first cover with title, name of author, degree sought and year of graduation. This bound copy is to be filed and left with the college librarian.

BUILDINGS.

Thompson Hall is the main administrative building and contains the offices of the president, the dean, the registrar and the purchasing agent. Here also are located the Departments of History and Political Science, Drawing and Machine Design, Modern Languages, Mathematics and Zoölogy.

Conant Hall is given over wholly to the Departments of Chemistry, Physics and Electrical Engineering.

Morrill Hall contains the Experiment Station Library of over one thousand volumes, the office of the director of the Experiment Station, and the laboratories, lecture rooms and offices of the Departments of Agronomy, Animal Husbandry and Horticulture.

Nesmith Hall is occupied by the Chemical, Botanical and Dairy Departments of the Experiment Station and contains the laboratory and lecture room of the Botanical Department of the College.

The Mechanical Engineering Building contains a wood shop, a machine shop, a forge shop, a foundry and the laboratories of the Mechanical Engineering Department.

In the Armory are the lecture rooms and offices of the Military Department, the rooms of the College Club and a large drill hall or gymnasium.

The college has also a large modern dairy barn, several smaller barns for sheep, horses, etc., a range of greenhouses especially planned for carrying on up-to-date work in greenhouse

management, and a dairy building. There is in process of construction a new dairy building, which will be arranged and equipped in the most up-to-date and sanitary manner. It will contain a commercial creamery, with separator room, churning room and cold storage room; laboratories for giving instruction in milk testing, milk inspection, farm butter-making and cheese making and bacteriology; a reading and exhibition room; a class room and offices.

Smith Hall, the woman's dormitory, was made possible by the generosity of Mrs. Shirley Onderdonk, of Durham, who gave sixteen thousand dollars as a memorial to her mother, Mrs. Alice Hamilton Smith. The remainder of the cost, \$10,000, was provided by the state. The building furnishes accommodations for thirty-two students.

In accordance with an act of consolidation between the libraries of Durham and the college, the books of the Durham Public Library and the college are all shelved in one building and form the Hamilton Smith Public Library. This consolidation makes an especially good collection, the scientific books of the college supplementing well the more popular books of the town library. The consolidated libraries number about 24,000 bound volumes and 7,000 pamphlets.

Aside from the main library, each department has its working library of the more technical books and those which are of special use in the laboratories and work-shops.

LABORATORIES AND EQUIPMENT.

AGRONOMY.

This department is provided with a collection of dried specimens of the different forage crops; the more important varieties of corn, wheat and oats; and with a large number of lantern slides, grass charts and other illustrative material. The soil physics laboratory is equipped with soil bins, a new compacting machine, chemical and torsion balances and various kinds of physical apparatus for the study of soils, including that for the determination of specific gravity and for the making of mechanical analyses.

The agricultural museum contains many of the latest models of the different makes of farm machinery, tools and appliances, including plows, cultivators, harrows, mowers, rakes, corn and grain binders, threshers, manure spreaders, different kinds of cattle ties and various makes of patent wire fences.

The college farm, with its 300 acres of land, has a variety of soils and soil conditions suited to the growth of nearly all the important farm crops, and thus offers excellent opportunities for practical work and demonstration in the department of agronomy.

ANIMAL HUSBANDRY.

For the various courses in animal husbandry an extensive use is made of the live stock of the college farm. The dairy herd consists of representative animals of the following breeds: Ayrshires, Guernseys, Jerseys, Holsteins and Shorthorns. The college owns seven head of horses representing the draft type, and in order to become acquainted with the carriage or roadster types the students are taken to various stock farms where these types may be inspected and judged.

For the study of the different breeds of sheep and swine the experiment station flocks of pure bred Southdowns, Dorset Horns, Shropshires, Hampshires, Lincolns and Merinos and herds of Yorkshires are used.

In the agricultural building a large room is fitted up for the judging of live stock; instruments for precise measurements are provided and score cards with a scale of points for each kind of animal are used.

The class-room is provided with a stereopticon lantern and a large collection of lantern slides is used to show the leading individuals of the different breeds of live stock. The herd books of the most prominent breeds are used for the purpose of familiarizing the student with methods of tracing pedigrees and the practices of breeders' associations.

BOTANY.

The botanical laboratory is supplied with a good herbarium, charts, microscopes and the other necessary appliances.

CHEMISTRY.

The several chemical laboratories are modern in design and well equipped. Each is supplied with the latest forms of apparatus required for its particular work. Besides all necessary glass and porcelain ware, this includes water baths, drying ovens, combustion, muffle and assay furnaces, platinum dishes and crucibles, polariscope, spectroscope, balances, lantern and other lecture appliances, etc.

DAIRYING.

All available space in the dairy building is filled with various forms of cream separators, churns, testing apparatus and other

dairy appliances. In addition to the product of the college herd, milk is received from about 25 farms in Durham and vicinity. Through this arrangement the college is able to furnish plenty of milk for practice work and to provide for a most thorough and practical training in dairy and creamery management.

DRAWING.

For free-hand model-drawing and for mathematical drawing there is a good supply of geometric models; and for free-hand industrial drawing the nucleus of a good collection exists, consisting of plaster casts of historic ornament, details of human form and antique sculpture, as well as vases and common objects. There is an excellent collection of working models and machines for machine drawing and various machines in other departments are available for this work.

ELECTRICAL ENGINEERING.

The electrical engineering laboratories consist of two dynamo rooms, a transformer room, a photometer room, a storage battery room and a laboratory for the calibration of measuring instruments, etc. In addition to the regular laboratories, the department has available for experimental work the large alternator of the power and service department, also 75,000 watts from the Rockingham County Power & Light Company. In the main dynamo room there is a large distributing switchboard on which are mounted instruments, switches and plugging devices so arranged that it is possible to connect the various laboratories, also each lecture room, and convey thereto direct current and single, two phase and three phase alternating currents of different voltages and periodicities. The general equipment of the department includes various dynamos and motors for both direct and alternating currents, several transformers, the necessary measuring instruments, storage batteries, etc., designed and arranged so as to be adapted for the needs of special laboratory work.

FORESTRY.

A tract of 60 acres of old forest growth is owned by the college. It is located close at hand and offers ample opportunities for studying forestry. The country about Durham presents forestry conditions typical of New England, and the transplanting of trees, sowing of seeds and general questions of forestry management may here be studied in Nature's laboratory.

HORTICULTURE.

The lecture room is fitted up with a stereopticon lantern and the collection of lantern slides is being continually enlarged.

The pomological and vegetable gardening laboratories are of original design and offer every facility for modern work. A great many varieties of vegetables are grown in the experiment station trial ground, and these offer exceptional opportunities for identification and study in the laboratory for some time after field conditions have gone by. The orchards, gardens and grounds also offer opportunities for demonstrating the theories advocated in the lecture-room. Propagation of fruits, shrubs and flowering plants is practised. A fine collection of Vilmorin charts is owned by the department.

MECHANICAL ENGINEERING.

A 40 horse-power engine furnishes power for the shops and a large duplex pump receives water under a head of 15 feet through an eight-inch pipe from a reservoir one-half mile distant, and forces it through underground mains to the various hydrants and buildings or through nozzles for measurements during tests. The pump, with its long supply pipe, a 10-inch standpipe and a 6,000-gallon tank, furnish apparatus for an extensive series of hydraulic experiments. Among other apparatus are a 50,000-pound Olsen machine with the necessary tools and measuring instruments for tension compression and transverse tests; a 12 horse-power gas engine; a Westinghouse air-brake pump with locomotive and tender attachments; steam and gas engine indicators; a surface condenser; a Bristol pyrometer; Pitot tubes; differential gauges; cement testing machine with the necessary sieves and other apparatus for testing cement according to the recommendations of the committee for cement testing; and the usual supply of scales, gauges, thermometers and small apparatus.

PHYSICS.

The department has a collection of the usual apparatus for laboratory work and lecture-room illustration.

The physical laboratory contains apparatus for studying absorption phenomena and the comparison of spectra of films, liquids, metals, etc.; for measuring the angles of crystals and indices of refraction; for verifying the laws of refraction and total reflection of light; for determining the moment of inertia of various forms of specimens. In electricity and magnetism the equipment includes instruments such as a magnetometer for studying the intensity of the earth's magnetism; a universal tangent galvanometer and an assortment of ammeters and voltmeters for measuring direct and alternating currents and voltages.

SHOPWORK.

The wood shop is supplied with benches and the necessary tools to accommodate twenty students at one time. Other equipment consists of a circular saw, board-planer, buzz-planer, jig-saw, speed-lathes and a large pattern maker's lathe with molding and boring attachments.

The equipment of the machine shop consists of engine lathes, a speed-lathe, a vertical drill, a Flather planer, a universal milling machine with gear-cutting and spiral attachments; a shaper, a power hack saw; a tool grinder; 12 benches with vises, and a large number of small tools, including micrometer, calipers and gauges necessary for accurate work.

In the forge shop are 18 Sturtevant down-draft forges with anvils and necessary tools. The blast to the forges is furnished by a No. 4 blower, and the smoke carried away by a 60-inch exhauster. These are driven by a small steam-engine.

SURVEYING.

The surveying instruments are sufficient in number and of the most approved pattern.

ZOOLOGY.

The zoölogical laboratory is well supplied with aquaria, microscopes, dissecting tools, charts, reference books and collections. The latter include a representative display of the birds of New Hampshire, and a very large collection of the insects of the state arranged in glass-covered boxes.

MUSEUM.

The museum had for a nucleus the collection made during the state geological survey. To this additions have been made from various sources. Specimens are being collected to illustrate the zoölogy of New Hampshire, and New Hampshire collectors and naturalists are invited to make the museum the permanent depository of their collections.

MILITARY DEPARTMENT.

This department is in charge of an officer of the United States regular army, detailed by the war department, as professor of military science and tactics. Military instruction, which is required by law, is both theoretical and practical, the latter largely from September to December 1 and from April 1 to June, the former having special reference to the duties of the line.

The organization is a battalion of two companies, with a band,

officered by cadets selected for character, soldierly bearing and efficiency. The federal government has furnished Krag-Jorgensen magazine rifles, model 1898, and equipment for 200 men. Attention is paid to rifle practice, the government supplying ample ammunition and target materials, and the college a good range, within four minutes' walk of the college buildings, with firing points at 200, 300 and 500 yards. The rolling country in the vicinity of the college furnishes the best opportunities for extended order drill and field exercises, the athletic field for close order drills, and the new gymnasium or drill shed gives ample room for indoor work.

The cadets wear, whenever on military duty, and may at other times, provided the complete uniforms are worn, cadet gray uniforms with black trouser stripes, black cloth band on cuffs and collars of blouses, and blue caps, army regulation. Officers wear braid instead of cloth on collars, cuffs and on bottom and front of coat. The letters N. H. C. are embroidered in gold on each side of the blouse collar. The cost of such a uniform does not exceed \$16 and the wearing of such does away with the necessity of purchasing a civilian suit for college use.

Service in this department is optional for members of the senior and junior classes; all other students, excepting those presenting surgeon's certificates of disability, are required to attend both drills and recitations. Seniors and juniors who elect drill and are appointed cadet officers have their college fees remitted.

Upon the graduation of each class, the names of such students as have shown special aptitude for military service are reported to the adjutant-general of the army and to the adjutant-general of the state. The names of the three most distinguished students in this department are inserted in the United States army register.

FOUR YEAR COURSES.

AGRICULTURAL COURSE.

This course is designed for the general education and scientific training of students in the various economic branches of agriculture. The lecture and recitation work of the classroom is supplemented largely by practical exercises in the laboratories. Seminary courses are also given, especially for seniors and advanced students. The whole curriculum is so arranged that about one third of the studies may be termed cultural, one third, scientific, and one third, technical. During the junior and senior

years of this course the student has elective options on certain courses of study which enable him to specialize in animal husbandry, dairying or horticulture.

While the two-year course is intended to give the student as thorough training in the science and practical details of farm operations as the time will allow, it does not give the opportunity for a broad general foundation of pure and applied science that the four-year course affords; the latter course aims primarily to combine a college education with that of a technical vocation. Many of the graduates of the four-year course return to the farm for the purpose of putting into practice the knowledge and training of their college work, and many of them are becoming successful and prosperous citizens of the community; others who have no farms of their own accept salaried positions as superintendents or foremen on the dairy, fruit or truck farms of large owners; still others take positions as teachers of science and agriculture in our secondary and high schools or as assistants in our agricultural colleges and experiment stations.

BIOLOGICAL DIVISION OF THE AGRICULTURAL COURSE.

The biological division of the agricultural course is for the benefit of those students who desire to make a special study of some phase of natural history. It leads to such positions as teachers of botany and zoölogy in high schools and colleges, entomologists for experiment stations, state inspectors of nursery grounds, etc. During the first two years the student pursues the regular studies of the agricultural course, but in his junior year he begins to specialize in botany and zoölogy, a considerable proportion of his time during the rest of his course being given to these subjects. Students taking this course will elect, with the advice of the instructors in charge, six hours per week of biological work in the junior year and seven hours per week during the senior year, exclusive of thesis.

CHEMICAL DIVISION OF THE AGRICULTURAL COURSE.

The work of this division is especially intended to give a thorough grounding in the principles of chemistry as applied to agriculture and agricultural chemical analysis and to train the student thoroughly in all kinds of manipulation required of the chemist in experiment stations, large dairy establishments, fertilizer works, etc.

Instruction is given mainly by personal supervision in the laboratory, accompanied by lectures, themes, recitations; and, as in the course in technical chemistry, the studies are arranged

to meet the needs of the individual. Students wishing to take this course will elect, with the advice of the instructors in charge, six hours per week of chemical work during the junior year, and seven hours per week during the senior year.

ARTS AND SCIENCE COURSE.

In the Arts and Science Course those who wish a college education for its cultural value are given an academic training that especially prepares them for teaching in secondary schools, or for special work in graduate schools. By means of the group system of elective studies an opportunity is given to specialize in History, English, Mathematics, Physics, Chemistry, Modern Languages, Agriculture, Zoölogy, Botany, Drawing, Philosophy, Pedagogy and Biology.

COURSES FOR WOMEN.

Women attending the college may elect any course laid down in the curriculum, subject to the conditions prescribed for all students. They may omit manual labor on the farm and in the shop, and substitute other studies.

The Arts and Science Course, with its electives, is specially prepared for women, the Courses in Agriculture and Chemistry afford opportunities for the study of the natural sciences, and the Engineering Courses offer exceptional advantages in mathematics and physics.

CHEMICAL ENGINEERING COURSE.

This course is intended to fit for the career of a professional chemist or chemical engineer, and to give a good foundation for original and independent chemical research.

Instruction is imparted by lectures, recitations and a large amount of carefully supervised laboratory work. The laboratory course is largely an individual one, and the work of each student is conducted with reference, not only to the particular object he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a thorough training in German and French to enable him to read with ease the chemical literature; a thorough grounding in mathematics, necessary for advanced theoretical chemistry or chemical engineering; a somewhat limited amount of special engineering work, both mechanical and electrical; and a thorough undergraduate training in theoretical and applied chemistry. He is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference works and chemical periodicals which the library contains. Owing to the fact that

the laboratories are becoming crowded the number of students taking this course is limited to six in each class. These six are chosen at the close of the freshman year from those who have applied. Fitness to become successful chemists will alone determine the choice made.

ELECTRICAL ENGINEERING COURSE.

The electrical engineering course is intended to meet the demands of a young man fitting himself for practical and professional engineering, in connection with the various applications of electricity.

By means of lectures, recitations and laboratory work, the subjects of the course are brought to the attention of the student in such a manner as to emphasize, not only the present needs of the practitioner and engineer, but to give him the groundwork that will enable him to grasp and understand the constantly increasing number of problems that require solution.

The instruction aims to impart a complete practical and theoretical knowledge of the best modern types of electrical machines and appliances and the methods of designing, building and operating them.

The rapid progress in recent years in applying electricity to commercial uses, renders it difficult, if not impossible, for one without a technical education to gain prominence in the work and be intrusted with its more responsible positions.

MECHANICAL ENGINEERING COURSE.

Mechanical engineering is concerned with the design, construction, care and operation of machinery.

The special studies are mathematical, including a large amount of drawing; technical, pertaining directly to the professional work of the engineer; and general.

The study of the scientific principles underlying the work of the engineer is accompanied throughout the course by actual practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, chemical and physical laboratories.

POST-GRADUATE AND SPECIAL COURSES.

The college offers opportunity for post-graduate study in Agriculture, Biology and Chemistry, and on the completion of satisfactory work advanced degrees will be given. Persons of mature years presenting satisfactory evidence of their ability to complete any desired course of study may be admitted as special students by vote of the faculty.

FOUR YEAR COURSES.

DESCRIPTION OF STUDIES.

AGRONOMY.

PROF. TAYLOR, MR. SLATE.

1. Farm Equipment and Farm Crops.

Lectures and recitations upon the selection, planning and equipment of farms; fencing; drainage; farm wells; harvesting and tillage implements; silos and stable construction, etc. History, use and methods of culture of our various farm crops. Practical exercises in leveling and laying out of drains and in the preparation of farm and building plans. Judging and scoring the different varieties of grains and grasses. For Agricultural Juniors.

*Three exercises per week. 1st S.***2. Soils and Soil Physics.**

Lectures and recitations upon the formation, kinds and physical properties of soils; the movements and conservation of soil moisture; the relation of heat and air to soil; the nature and physical effects of tillage and fertilizers; laboratory work and experimentation with soils to show the physical effects of different conditions and texture. For Agricultural Juniors.

*Three exercises per week. 2d S.***3. Soil Management and Fertility.**

An advanced course in soils for those who have shown a special aptitude in the preceding course. The processes of soil formation, the physics and chemistry of soils, soil classification and mapping and the principles of fertility will be discussed. The lecture work will be supplemented by laboratory and field experimentation. Elective for Agricultural Seniors.

*Three exercises per week. 1st S.***4. Manures and Fertilizers.**

A course of lectures, text book and seminary work on farm manures and commercial fertilizers. Elective for Agricultural Seniors.

*Two exercises per week. 2d S.***5. Agricultural Seminary.**

This course consists of library and reference work and a study of current agricultural literature. Each student will prepare during the term a certain number of abstracts, reports of papers upon topics relating to agriculture. For Agricultural Seniors.

Two exercises per week. 1st S.

6. Agricultural History and Economics.

Lectures and recitations upon the history of agriculture from early Egyptian to modern American; present agricultural methods and systems in various countries; the principles of economics as applied to the organization, equipment and operation of the farm; tenancy and land ownership; practical problems in farm management. For Agricultural Seniors. First nine weeks.

Four exercises per week. 2d S.

7. Farm Mechanics.

Lectures and recitations upon the principles of construction of farm buildings; barns and silos; construction and maintenance of country roads; principles of draft; farm motors and machinery. Practical work in testing and comparisons of various makes and kinds of farm machinery. For Agricultural Seniors. Last eight weeks.

Four exercises per week. 2d S.

ANIMAL HUSBANDRY.

ASSOC. PROF. ARKELL, ASST. PROF. MCNUTT.

1. Types and Breeds of Live Stock.

A study of the different breeds of cattle, sheep, horses and swine in respect to their origin, history, development, characteristics and adaptability to different conditions of climate and soil. In the study of beef cattle, market conditions and requirements are discussed; in the study of dairy cattle, milk and butter production; and in the study of sheep, mutton and wool production and the raising of hot-house lambs. In the study of horses, besides the origin, history and development of the breeds, market classifications are defined; and in the study of swine, the influence of various feeds and of different methods of management as affecting types is discussed. One afternoon each week is devoted to judging the different breeds. For Agricultural Sophomores.

Three exercises per week. 1st S.

2. Principles of Breeding.

Lectures and recitations upon the laws of heredity; value of selection in improving and maintaining a high standard of excellence in farm stock; variation, cause and extent; methods of breeding, including discussion of inbreeding, crossing and grading, and practice in tracing pedigrees. Elective for Agricultural Seniors.

Two exercises per week. 2d S.

3. Feeds and Feeding.

Lectures and recitations upon the laws of nutrition; composition and digestibility of feed stuffs; influence of feed on the

animal body, preservation of coarse fodders; a study of leading cereals and by-products; feeding standards. Practice will be given in computing and compounding rations for various purposes. For Agricultural Juniors.

Three exercises per week. 2d S.

4. Veterinary Science.

Lectures and recitations upon the anatomy and physiology of the animal body; diseases and ailments; simple farm medicines and methods of administering; holding a post-mortem; infectious and contagious diseases affecting farm animals and methods of treatment; care of breeding animals with treatment of diseases and accidents incident to the parturient state. Elective for Agricultural Juniors.

Three exercises per week. 2d S.

5. Poultry.

Lectures and recitations upon the different classes and breeds of poultry; breeding and feeding; location and building of poultry houses; a study of incubators and brooders; methods of preventing disease. Practice will be given in scoring. Elective for Agricultural Juniors.

Two exercises per week. 1st S.

6. Advanced Live Stock.

This course is designed especially for those students who have shown proficiency in the previous courses relating to live stock. Students are given an opportunity to perform original work in investigating special problems concerning the breeds and their management. Elective for Agricultural Juniors.

Three exercises per week. 2d S.

7. Live Stock Management.

A study of the general management and care of horses, cattle, sheep and swine; fitting for market and exhibition; approved methods of stabling; sanitation; maintaining health and vigor in live stock. Elective for Agricultural Seniors or Juniors.

Three exercises per week. 1st S.

BOTANY.

PROF. BROOKS, MR. LEWIS.

1. General Botany. Prof. Brooks, Mr. Stewart.

Lectures and laboratory work on the fundamental principles of plant physiology, followed by the study of a series of representative cryptogams. For Agricultural Sophomores, elective for Arts and Science Freshmen and Sophomores.

Three exercises per week. 1st S.

2. General Botany.

This course continues the work on type forms begun in Course 1 and includes the study of vascular cryptogams, gymnosperms and angiosperms. The latter part of the semester will be devoted to a study of plant families and plant societies as represented in the local flora. Lectures, laboratory and field work. For Agricultural Sophomores, elective for Arts and Science Freshmen and Sophomores.

Open only to students who have completed Botany 1.

Three exercises per week. 2d S.

3. Plant Pathology.

This course deals with the nature, cause and prevention of plant diseases and includes a systematic consideration of parasitic fungi. Lectures and laboratory work. For Agricultural Juniors, elective for Arts and Science Juniors and Seniors.

Open only to students who have completed Botany 2.

Three exercises per week. 1st S.

4. Mycology.

A study of representative groups of fungi; culture methods and pathological work with fungous diseases. Lectures, laboratory and field work. Elective for Agricultural Juniors and Arts and Science Juniors and Seniors.

Open only to students who have completed Botany 2.

Three exercises per week. 2d S.

5. Plant Physiology.

Lectures and experimental work on absorption, nutrition, growth, respiration and irritability. Elective for Agricultural and Arts and Science Juniors and Seniors.

Open only to students who have completed Botany 2.

Three exercises per week. 2d S.

6. Plant Histology.

A minute study of plant cells and plant tissues, starches, aleurones and other cell contents. Lectures and laboratory work. Elective for Arts and Science Juniors and Seniors and Agricultural Seniors.

Open only to students who have completed Botany 2.

Three exercises per week. 1st S.

7. Advanced Botany.

Opportunity to do original work along special lines will be offered to students who have shown special ability in the preceding courses.

Three exercises per week. 1st S.

8. Advanced Botany.

Continuation of Botany 7. *Three exercises per week. 2d S.*

9. Systematic Botany.

Lectures and laboratory work on the classification of plants with special reference to those of New England. Elective for Arts and Science Juniors.

Open only to students who have completed Botany 2.

Three exercises per week. 1st S.

10. Bacteriology.

A study of the morphology and classification of bacteria, of culture methods, and of the relation of bacteria to such processes as decomposition, fermentation and digestion and to the production of disease. Elective for Agricultural and Arts and Science Juniors and Seniors.

Open only to students who have completed Botany 2.

Three exercises per week. 2d S.

CHEMISTRY.

PROF. PARSONS, ASST. PROF. JAMES, DR. RANDALL, MR. PRATT.

1. Inorganic Chemistry.

Lectures and recitations on general and theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solution of chemical problems will be required. For Agricultural and Engineering Freshmen, elective for Arts and Science Freshmen.

Three exercises per week. 1st S.

2. Inorganic Chemistry.

Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc.

Open only to students who have completed Chemistry 1.

Two exercises per week. 2d S.

3. Elementary Physical Chemistry.

A short elementary course of ten lectures on the Dissociation Theory and its application; the Mass Law, etc. To accompany Chemistry 2 and 4.

Elective by special arrangement.

4. Qualitative Analysis.

Chemistry 4 consists of laboratory practice, with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases and to keep a full set of notes. He will have practice in the writing of reactions and will fill out numerous slips containing questions bearing upon his work. For Chemical Freshmen, Electrical and Mechanical Freshmen (Division 1), Agricultural Sophomores and

Electrical and Mechanical Sophomores (Division 2); elective for Arts and Science Sophomores and Juniors.

Open only to students who have completed Chemistry 1.

Freshman Year. First nine weeks. 2d S.

Sophomore and Junior Years. 1st S.

Fifty-one exercises.

5. Qualitative Analysis.

A short advanced course for Chemical Sophomores on insoluble substances and the rarer elements, to precede Chemistry 10. First five weeks. *Twenty-five exercises. 1st S.*

6. Organic Chemistry.

Lectures and recitations. A study of the chemistry of the carbon compounds. For Agricultural and Chemical Sophomores, elective for Arts and Science students.

Open only to students who have completed Chemistry 1 and 2.

Three exercises per week. 2d S.

7. Physiological Chemistry.

Lectures and recitations on the composition and nutrition of plants and animals. For Chemical Juniors, elective for Agricultural and Arts and Science Seniors.

Open only to students who have completed Chemistry 6.

Two exercises per week. 1st S.

8. Organic Chemical Laboratory.

The course consists mainly of laboratory practice in preparing and purifying organic compounds and a study of qualitative organic reactions and analyses. Lectures and recitations will be held from time to time in connection with the practice. For Chemical Juniors, elective for Arts and Science students.

Open only to students who have completed Chemistry 6.

Three exercises per week. 1st S.

10. Quantitative Analysis.

A preliminary course in quantitative analysis to familiarize the student with the general methods of chemical manipulation and analysis. For Chemical Sophomores. Elective in the Arts and Science Course in Sophomore, Junior and Senior Years, provided laboratory facilities permit. Last twelve weeks.

Open only to students who have completed Chemistry 4.

Five exercises per week. 1st S.

11. Quantitative Analysis.

A continuation of Chemistry 10. For Chemical Sophomores.

Six exercises per week. 2d S.

12. Advanced Quantitative Analysis.

Chemistry 12 is arranged for students of the Chemical Courses, and is intended to fit them for work in the laboratories of agricultural experiment stations, fertilizer works, iron works, sugar refineries, etc., and for the duties of the public analyst. This course will be made to fit the end which each has in view, and will be largely an individual one. For those students desiring to specialize in agricultural and food chemistry the analysis made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, foodstuffs, sugars, etc. For the student wishing to enter metallurgical works, the analyses will be in the main upon iron and steel and other metals, ores, limestones, slags, alloys, fuels, etc. As a preparation for the study of medicine, work will be done on poisons, foods, drugs, urine, etc. Other lines will be arranged to meet the wants of the individual student. Each student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary and industrial chemistry, in order to lay a foundation for any future work which may be required of him. A short course in gas and oil analysis will also be provided. For Chemical Juniors.

Open only to students who have completed Chemistry 11.

Four exercises per week. 1st S.

13. Advanced Quantitative Analysis.

A continuation of Chemistry 12. For Chemical Juniors.

Four exercises per week. 2d S.

14. Industrial Chemistry.

Chemistry 14 consists of lectures on chemical manufactures, such as sugar, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints, dyes, soaps, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern views, and trips to the leading New England cities to examine important chemical manufactures will be taken as far as practicable. For Chemical Juniors and Seniors.

Open only to students who have completed Chemistry 1 and 2.

Two exercises per week. 2d S.

15. Metallurgy.

Chemistry 15 consists of lectures describing the processes employed in the smelting of ores of iron, lead, copper, zinc, silver, gold, etc., and upon the methods used in refining these metals. The lectures are illustrated by stereopticon and by specimens of metallurgical products. For Chemical Juniors and Seniors.

Open only to students who have completed Chemistry 1 and 2.

One exercise per week. 2d S.

Chemistry 14 and 15 are given in alternate years with Chemistry 22.

16. Assaying.

A course in the fire assay of gold and silver ores. For Chemical Seniors.

Open only to students who have taken Chemistry 10 or 18.

Seventeen exercises. 1st S.

17. Agricultural Analysis.

This course is arranged especially for students of the Agricultural Course, and consists mainly of the quantitative determination of the constituents of milk, butter, fertilizers, grain, etc. Elective, subject to desk room in laboratory.

Open only to students who have completed creditably the work of Chemistry 1, 2 and 4.

Three exercises per week.

18. Metallurgical Analysis.

This course is arranged for the students of the Engineering Departments who may elect the same, and consists mainly of the quantitative determination of ores, slags, metals, alloys, fuels, etc. Elective, subject to desk room in the laboratory.

Open only to students who have completed creditably the work of Chemistry 1, 2 and 4 or 5.

Three exercises per week.

19. Chemical Journals, Methods, etc.

The work consists of the study of current chemical literature, mainly in the German language, with recitations twice a week. Each student will be expected to prepare abstracts, reports, criticisms, etc., upon assigned articles. For Chemical Juniors.

Open to students who have begun Chemistry 11.

Two exercises per week. 1st S.

20. Chemical Journals.

A continuation of Chemistry 19. For Chemical Juniors.

Two exercises per week. 2d S.

21. Physical Chemistry, Lectures.

The work consists of advanced study of chemical theory. Practical experiments will be performed, with the aid of the student, in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, ionization, electrolysis, molecular and atomic volume, thermo chemistry, equilibrium, the phase rule, etc., will take up much of the time. For Chemical Juniors and Seniors. Course 21 comes in alternate years.

Open only to students who have completed Chemistry 1, 2 and 10.

Two exercises per week. 1st S.

22. Physical and Electro Chemistry, Lectures.

A continuation of Chemistry 21, and is given in alternate years with Chemistry 14 and 15. For Chemical Juniors or Seniors.

Three exercises per week. 2d S.

23. Chemical Research.

Especially arranged for students of the Chemical Engineering Course. May merge at any time into 24 and will usually do so about the middle of the first semester. For Chemical Seniors.

Eight exercises per week. 1st S.

24. Thesis.

The work of the last semester of the Chemical Engineering Course is given up to the special study of some selected subject in any branch of chemical science and the student is required to present a thesis showing him to be capable of independence of thought and manipulation. For Chemical Seniors.

Eight exercises per week. 2d S.

DAIRYING.

PROF. RASMUSSEN.

1. Farm Dairying.

Lectures and recitations on the Babcock test, on tests for determining the acidity of milk and on the use of the lactometer in detecting adulterations in milk. Includes also a study of the composition, separation and churning of milk. The laboratory work will be made applicable to farm conditions. For Agricultural Juniors.

Four exercises per week. 1st S.

2. Advanced Butter Making.

A study of the secretion, chemical and physical properties of milk, pasteurization, cream ripening, commercial starters, the churning, marketing and scoring of butter. The laboratory work will be made applicable to factory conditions. Elective for Agricultural Seniors.

Open only to students who have completed Dairying 1.

Three exercises per week. 2d S.

3. Technology of Milk.

Consists of a study of the uses of milk and its by-products outside the scope of butter and cheese making; the production and preparation of sanitary, certified, modified milk; the making of condensed milk and koumiss; the manufacture of casein and milk sugar, and the preparation of ices and ice cream. Elective for Agricultural Juniors and Seniors.

Open only to students who have completed Dairying 1.

Two exercises per week. 2d S.

4. Factory Management.

This course is designed for students wishing to fit themselves for managers of large factories and other dairy establishments. It consists of a study of the organization, location, construction, and operation of factories; special problems connected with the manufacturing of butter; dairy conditions and methods in foreign countries. Elective for Agricultural Seniors.

Open only to students who have completed Dairying 2.

Three exercises per week. 1st S.

5. Dairy Bacteriology and Cheese Making.

Lectures and demonstrations on the function of bacteria and the application of bacteriological principles to dairy work.

A course of lectures will be given covering the details of the manufacturing, curing and marketing of the more important kinds of cheese. Elective for Agricultural Seniors.

Open only to students who have completed Dairying 1.

Two exercises per week. 2d S.

6. Dairy Research.

A study of the work of the experiment stations and other dairy literature. Elective for Agricultural Seniors.

Open only to students who have completed Dairying 1, 2 or 3.

Two exercises per week. 1st S.

*DRAWING.

PROF. PUTNAM, MR. LATON.

These courses are of an industrial nature and include both free-hand and mathematical branches of this subject.

1a. Industrial Drawing. Prof. Putnam, Mr. Laton.

Free-hand lettering, free-hand drawing, use of instruments, mathematical drawing, inking, tinting, tracing and blue-prints.

Systems of object drawing; orthographic projection; isometric drawing; mechanical perspective, shades and shadows. For Engineering Freshmen.

Two and one half exercises per week. 1st S.

1b. Industrial Drawing. Prof. Putnam, Mr. Laton.

Same as Course 1a. For Agricultural Freshmen, elective for Arts and Science Freshmen.

Two exercises per week. 1st S.

NOTE—Alternating with shop work on Wednesdays.

* Students are advised not to purchase drawing instruments or supplies before consultation with the drawing instructor.

2a. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Recitations and drawing exercises in the solution of geometrical problems by orthographic projection. For Engineering Freshmen (Division 1).

Open only to students who have completed Drawing 1a and Mathematics 2. *Three exercises per week. 2d S.*

2b. Descriptive Geometry.

Same as Drawing 2a. For Engineering Freshmen (Division 2). First nine weeks.

Open only to students who have completed Drawing 1a and Mathematics 2. *Two exercises per week. 2d S.*

3. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Continuation of Drawing 2b. Practical problems on bridge beams, rafters, piping, etc.

For Engineering Freshmen (Division 2). Last eight weeks.

Two exercises per week. 2d S.

4. Design of Farm Buildings. Prof. Putnam.

This course consists of drawings of floor plans and framing details for farm buildings in preparation for the Rural Architectural Course of the Senior Year. For Agricultural Freshmen.

Open only to students who have completed Drawing 1b.

Two exercises per week. 2d S.

5. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Same as Course 3. For Electrical and Mechanical Sophomores (Division 1). First eight weeks.

Open only to students who have completed Drawing 1a and 2a or 2b and Mathematics 2.

Two and one half exercises per week. 1st S.

6a. Elementary Machine Drawing. Mr. Laton.

Mechanism drawing; detail and assembly drawing of simple machines. For Electrical and Mechanical Sophomores (Division 1). Last nine weeks.

Open only to students who have completed Drawing 1a to 3 and Mathematics 2.

Two exercises per week. 1st S.

6b. Elementary Machine Drawing. Mr. Laton.

Same as Course 6a. For Electrical and Mechanical Sophomores (Division 2).

Open only to students who have completed Drawing 1a to 3 and Mathematics 2.

Two exercises per week. 1st S.

7. Elementary Machine Drawing and Free-Hand Drawing of Chemical Apparatus. Mr. Laton.

For Chemical Sophomores.

Open only to students who have completed Drawing 1a to 3.

Two exercises per week. 1st S.

8. Machine Drawing. Mr. Laton.

Working drawings of various machines and machine tools including steam boiler and engine details. For Electrical and Mechanical Sophomores.

Open only to students who have completed Drawing 6.

Two and one half exercises per week. 2d S.

NOTE—Alternating with shop work on Wednesdays.

9. Free-Hand Drawing. Prof. Putnam.

Light and shade drawing from casts and still life. Charcoal work. Elective for Arts and Science Sophomores.

Two exercises per week. 1st S.

10. Free-Hand Drawing.

Wash drawings and water color work; pencil sketching from nature and exercises in perspective. Elective for Arts and Science Sophomores.

Two exercises per week. 2d S.

11. Architectural Drawing.

Studies of architectural detail and historic ornament. Elective for Arts and Science Juniors.

Three exercises per week. 1st S.

12. Architectural Drawing.

Continuation of Drawing 11. The design of a building with details of ornament. Elective for Arts and Science Juniors.

Three exercises per week. 2d S.

13. Advanced Architectural Drawing.

Elective for Arts and Science Seniors.

Open only to students who have completed Drawing 11 and 12.

Three exercises per week. 1st S.

14. Advanced Architectural Drawing.

Elective for Arts and Science Seniors.

Open only to students who have completed Drawing 11, 12 and

13.

Two exercises per week. 2d S.

16. Free-Hand or Charcoal Drawing.

Elective for Arts and Science Freshmen. Last eight weeks.

Four exercises per week. 2d S.

ELECTRICAL ENGINEERING.

PROF. HEWITT, ASST. PROF. BUCK.

1. Dynamo Electric Machinery. Prof. Hewitt.

The course begins with a general study of both direct and alternating current dynamos and motors, including elementary theory, with a large number of practical problems to illustrate application of same. For Electrical and Mechanical Juniors.

Open only to students who have completed Physics 2 and Mathematics 6. Three exercises per week. 1st S.

2. Dynamo Electric Machinery. Asst. Prof. Buck.

This course is a continuation of Course 1. It takes up the theory of armature winding and construction; the general points of design; a study of various types of electrical machinery; laboratory methods of measurements, the various electrical quantities such as electromotive force, current, resistance, permeability of iron, the use of standard instruments; the laws of electrolysis; thermo-electric currents, etc. For Electrical and Mechanical Juniors.

Open only to students who have completed Electrical Engineering 1. Three exercises per week. 2d S.

4. Electrical Laboratory. Prof. Hewitt, Asst. Prof. Buck.

This course consists of the measurement of resistances, inductances, capacities; the permeabilities of samples of iron; the determination of the candle power of incandescent and arc lamps; the calibration of resistances; the measurement of power in alternating current circuits; alternator characteristics; the testing of synchronous and polyphase motors; transformers; power measurements by wattmeters and a general study of polyphase machinery. For Electrical Juniors.

Open only to students who have completed Electrical Engineering 1. Three exercises per week. 2d S.

6. Telegraph and Telephone. Asst. Prof. Buck.

This course consists in a careful study of the elementary electrical principles of telegraphy; the construction and connection of lines, repeaters; high speed telegraphy; simple and multiplex telegraphy; submarine signalling; automatic devices, general electric signalling for purposes of alarms, railroads, etc., and wireless telegraphy; also lectures and recitations on the acoustic and electrical principles of telephony; the different forms of calling and receiving apparatus and accessories and simple circuits. The latter part of the course is devoted to the consideration of

the more complex forms of circuits, exchange switchboards, transfer systems and the construction of overhead and underground systems. Elective for Electrical Juniors.

One exercise per week. 2d S.

11. Electrical Engineering Practice. Asst. Prof. Buck.

This course takes up the study of the properties of periodic curves; the effects of self-induction and capacity and a more detailed study of dynamos, motors, transformers and other electrical apparatus. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 2.

Four exercises per week. 1st S.

12. Electrical Engineering Practice. Prof. Hewitt.

This course is a continuation and completion of Electrical Engineering 11. It takes up more advanced theory and general practice. It also includes a thorough study of High Tension Power Transmission and deals with the selection of apparatus for generating stations and the distributing systems. A study will be made of the proper combinations of apparatus to correctly represent standard theory and practice. The design of the transmission line and of the distributing systems will be considered. The application of the theory will be brought out in lectures and established with a large number of practical problems. A careful study will be given to the various methods used for lightning protection. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 11.

Four exercises per week. 2d S.

13. Electric Railways. Asst. Prof. Buck.

In this course will be considered the principles which govern the application of electric motors to railway service, and the location of power and sub-stations as determined by economic questions. Following this will be given the practical points involved in the selection and operation of railway equipment including power and sub-station equipment, line and track, railway motors and car equipment, storage batteries, etc. The problem of utilizing electric energy in mining will also be considered. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 2.

Two exercises per week. 1st S.

15. Electrical Laboratory. Prof. Hewitt, Asst. Prof. Buck.

This course is a continuation of Course 4 covering a more advanced series of experiments. A written report will be re-

quired for which one additional credit hour will be given. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 4. *Four exercises per week. 1st S.*

16. Electrical Laboratory. Prof. Hewitt, Asst. Prof. Buck.

This course is a continuation of Course 15 and takes up experiments of a more advanced nature. A written report will be required for which one additional credit hour will be given. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 15. *Four exercises per week. 2d S.*

17. Electrical Laboratory. Prof. Hewitt, Asst. Prof. Buck.

This course is similar to Course 4, only a specially arranged series of experiments is provided adapted to the needs of students in the Mechanical Engineering Course. For Mechanical Juniors.

Open only to students who have completed Electrical Engineering 2. *One exercise per week. 2d S.*

18. Thesis. Prof. Hewitt, Asst. Prof. Buck.

A deposit of fifteen dollars to cover any damage done to instruments or apparatus, etc., is required in this course. Any unexpended balance is refunded at the close of the college year. Where apparatus is constructed as a part of a thesis, it shall remain the property of the department. For Electrical Seniors.

Three exercises per week. 2d S.

19. Dynamo Electric Machinery. Prof. Buck.

This course is a continuation of Electrical Engineering 2, but arranged to meet the requirements of students in Mechanical Engineering. This course is not as advanced as Electrical Engineering 11, but covers the same subjects in a more elementary manner. For Mechanical Seniors.

Open only to students who have completed Electrical Engineering 2. *Three exercises per week. 1st S.*

20. Dynamo Electric Machinery. Prof. Hewitt.

This course is a completion of Electric Engineering 19. For Mechanical Seniors.

Open only to students who have completed Electrical Engineering 19. *Two exercises per week. 2d S.*

21. Industrial Electricity. Prof. Hewitt.

This course consists of a careful study of the principles and methods employed in electrical measurements, such as resistance

of wire and batteries, current measurement by ammeters and electrolysis, the use of electrical measuring instruments and a series of laboratory experiments specially arranged to meet the requirements of Chemical Engineers. A brief study will be made of the dynamo, motor, transformer, primary and secondary batteries, arc and incandescent lamps and the general principles of electrical distribution. Experiments in electrolysis, electrical furnaces, reduction of metals, etc., are provided. For Chemical Seniors.

Three exercises per week. 1st S.

22. Industrial Electricity. Prof. Hewitt.

This course is a continuation of Electrical Engineering 21, but more advanced in nature. For Chemical Seniors.

Open only to students who have completed Electrical Engineering 21.

Three exercises per week. 2d S.

23. Contracts and Specifications. Prof. Hewitt.

The laws and forms of engineering contracts; standard specifications for engineering materials and apparatus. For Mechanical Seniors, elective for Electrical Seniors.

One exercise per week. 1st S.

24. Electrical Laboratory. Prof. Hewitt, Asst. Prof. Buck.

This course is a continuation of Electrical Engineering 17 and takes up experiments of a more advanced nature. A written report will be required for which one additional credit hour will be given. For Mechanical Seniors.

Open only to students who have completed Electrical Engineering 17.

Two exercises per week. 1st S.

25. Design of Electrical Machinery. Prof. Buck.

This course covers a study of the design of the more important electrical machines, and includes the calculation of the dimensions of the machine, both electrical and mechanical, and the predetermination of its performance from the dimensions. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 11.

Three exercises per week. 2d S.

ENGLISH.

PROF. GROVES, PROF. SCOTT, MR. DAVID.

1. English Composition and Rhetoric. Mr. David.

The theory of composition, theme writing, book reviews and an introduction to the principles of literary criticism. For all Freshmen.

Three exercises per week. 1st S.

2. English Composition and Rhetoric. Mr. David.

This is a continuation of English 1.

Open only to students who have completed English 1.

Three exercises per week. 2d S.

3. Advanced English Composition and Criticism. Mr. David.

(a) Composition. The four forms of composition (narration, description, exposition and argumentation) will be taken up and practice given in each form. There will also be daily and weekly themes based on topics of the day (editorials), and on required readings. (Gardner's Forms of Prose Literature.)

(b) Criticism. The history of criticism will be studied briefly, each student having one novel and one poet to criticise. (Winchester's Principles of Literary Criticism.) Elective for Arts and Science Sophomores and Juniors.

Three exercises per week. 1st S.

4. The English Drama. Mr. David.

Lectures on the English drama, with required readings in Shakespeare, Sheridan and Goldsmith. There will also be recitations and discussions. Elective for Arts and Science Juniors and Seniors.

Three exercises per week. 2d S.

5. The English Novel. Prof. Groves.

A seminar study of the development of the English novel. Elective for Arts and Science Juniors and Seniors.

Open only to students who have completed English 1, 2, 3 and 4.

Three exercises per week. 1st S.

6. Argumentation.

The principles and forms of argumentative composition, brief drawing and forensics. Practice in oratorical argumentation. Laycock and Scales' Argumentation and Debate. For Agricultural Seniors, elective for Chemical Seniors and Arts and Science Sophomores and Juniors.

Three exercises per week. 2d S.

7. American Literature. Prof. Scott.

Lectures with an extensive course of reading. Elective for Arts and Science and Agricultural Seniors.

Four exercises per week. 2d S.

FORESTRY.

PROF. PICKETT.

1. Principles of Forestry.

This course is intended to give the student a knowledge of the various methods of forestry management in Europe and America.

The text and lectures will cover the use of trees for shelter, shade and ornament, and their propagation; the value of trees for timber; how to improve existing woodlands; the influence of forests upon soils, crops and climate; the establishment and management of plantations and forest trees. For Agricultural Juniors. *Three exercises per week. 1st S.*

2. Forest Technology.

This course aims to give the student advanced theoretical and practical work in establishing, improving and managing woodlands; in estimating and measuring standing timber and harvesting forest products; forest administration, laws and working plans. Seminary and laboratory work. Elective for Agricultural Seniors who have shown special ability in Forestry 1.

Three exercises per week. 1st S.

3. Systematic Arboriculture.

A study of the botanical and physical characters of forest trees and shrubs. Special stress is laid on the value of various trees for lumber, fuel, posts, etc. Rapidity of growth, denseness and strength of fiber, etc., are features given particular attention. Elective for Agricultural Juniors who wish to specialize in Forestry.

Three exercises per week. 1st S.

4. Forest Nursery Management.

A study of the methods of propagation and care of trees, shrubs, and perennial plants in the nursery. This course will be the same as Horticulture 10 except that students specializing in forestry will be given forest trees and shrubs for laboratory work instead of fruit and ornamental plants. Elective for Agricultural Juniors who wish to specialize in Forestry.

Three exercises per week. 2d S.

FRENCH.

PROF. WHORISKEY, MR. TAISNE.

1. Elementary French. Mr. Taisne.

Essentials of French grammar and reading, with practice in speaking and writing French. Dictation. For Freshmen offering German for admission. *Three exercises per week. 1st S.*

2. Elementary French. Mr. Taisne.

Continuation of French 1. Reading of Modern French Prose; translation from English into French of connected narrative. Dictation. For Freshmen offering German for admission.

Three exercises per week. 2d S.

3. French Prose. Mr. Taisne.

Reading and translation of French Prose, Composition, Poems.
Elective for Arts and Science Students.

Three exercises per week. 1st S.

4. French Prose, History and Travel. Mr. Taisne.

Reading and Translation, Composition based on some book
read in class. Elective for Arts and Science Students.

Three exercises per week. 2d S.

†5. French Prose of Nineteenth Century. Mr. Taisne.

Selections from Hugo, Balzac, Sand, Dumas père, Daudet will
be read. Sight reading. Elective for Arts and Science Stu-
dents.

Three exercises per week. 1st S.

†6. French Prose of Nineteenth Century. Mr. Taisne.

Continuation of French 5. Elective for Arts and Science
Students.

Three exercises per week. 2d S.

†7. French Literature in the Seventeenth Century. Prof. Whoriskey.

Corneille, Racine, Molière, Bossuet, Mme. de Sévigné, La Fon-
taine. Elective for Arts and Science Students.

Three exercises per week. 1st S

†8. French Literature in the Seventeenth Century. Prof. Whoriskey.

Continuation of French 7. Elective for Arts and Science
Students.

Three exercises per week. 2d S.

†9. French Composition. Prof. Whoriskey.

Elective for Arts and Science Students.

One and one half exercises per week. 1st S.

†10. French Composition. Prof. Whoriskey.

Elective for Arts and Science Students.

One and one half exercises per week. 2d S.

GEOLOGY.

PROF. PARSONS, ASST. PROF. JACKSON.

1. Mineralogy. Prof. Parsons.

A short course in blowpipe analysis, followed by laboratory
practice in the determination and study of minerals, with spe-

† Courses 7 and 8 are to be given in 1909-1910 and then in alternate years
with 5 and 6.

‡ During the year 1909-1910, French 9 and 10 will not be given.

cial reference to their economic value. For Chemical Juniors, elective for Agricultural and Arts and Science Juniors.

Open only to students who have completed Chemistry 1 and 2.

Two exercises per week. 2d S.

2. Elementary Geology. Prof. Jackson.

A brief course in the elements of geology. Special attention is given to local geology and excursions are made to various points of interest in the vicinity. For Agricultural Juniors, elective for Arts and Science Juniors and Seniors.

Three exercises per week. 2d S.

3. Historical Geology. Prof. Jackson.

The development of the continents of the earth and the evolution and distribution of the animal and plant forms from the earliest times to the present. Recitations, lectures and laboratory work. Elective for Agricultural and Arts and Science Seniors.

Open only to students who have completed Zoölogy 3 and Geology 2.

Three exercises per week. 1st S.

GERMAN.

PROF. WHORISKEY, MR. DAVID.

1. Elementary German. Prof. Whoriskey, Mr. David.

German Grammar. Declension of articles, nouns, adjectives and pronouns; verbs, weak and strong. Reading of simple stories; conversation. Dictation. For Freshmen offering French for admission.

Three exercises per week. 1st S.

2. Elementary German. Prof. Whoriskey, Mr. David.

Continuation of German 1. Verbs, modal auxiliaries, essentials of syntax. Composition, reading and translation; poems. Dictation. For Freshmen offering French for admission.

Three exercises per week. 2d S.

3. German Prose of the Nineteenth Century. Prof. Whoriskey, Mr. David.

Reading and Translation. Composition based on some book read in class. For Engineering Sophomores, elective for Agricultural and Arts and Science Sophomores.

Three exercises per week. 1st S.

4. Scientific German. Prof. Whoriskey, Mr. David.

Reading and Translation. Composition. For Engineering Sophomores, elective for Agricultural and Arts and Science Sophomores.

Three exercises per week. 2d S.

†5. Goethe. Prof. Whoriskey.

His Life and Works. Elective for Arts and Science Students.
Three exercises per week. 1st S.

†6. Goethe. Prof. Whoriskey.

Continuation of German 5. Elective for Arts and Science Students.
Three exercises per week. 2d S.

†7. Schiller. Prof. Whoriskey.

Life and Works. Elective for Arts and Science Students.
Three exercises per week. 1st S.

†8. Schiller.

Continuation of German 7. Elective for Arts and Science Students.
Three exercises per week. 2d S.

†9. German Composition. Prof. Whoriskey.

Elective for Arts and Science Students.
One and one half exercises per week. 1st S.

†10. German Composition. Prof. Whoriskey.

Elective for Arts and Science Students.
One and one half exercises per week. 2d S.

11. German Composition.

Elective for Arts and Science Students.
Three exercises per week. 1st S.

12. German Composition.

Elective for Arts and Science Students.
Three exercises per week. 2d S.

HISTORY.

PROF. SCOTT.

In the courses in History an important place is given to historical reading carried on in the reference room. In some cases a considerable part of the work is written.

History 1 and 2 and History 3 and 4 are given in alternate years. History 1 and 2 are offered in 1910-'11.

History 1 to 4 are open only to students who have passed in Ancient History.

History 5 to 7 are open only to students who have passed in History and Constitution of the United States.

† Courses 5 and 6 are to be given in 1909-1910 and then in alternate years with 7 and 8.

† German 9 and 10 will not be given during the year 1909-1910.

1. History of Europe from 476 to 1492.

Recitations and collateral reading. For Arts and Science Freshmen, elective for Arts and Science Sophomores.

Three exercises per week. 1st S.

2. History of Europe from 1492 to 1715.

Recitations and collateral reading. For Arts and Science Freshmen. Elective for Arts and Science Sophomores.

Three exercises per week. 2d S.

3. History of Europe from 1715 to 1815.

Recitations and collateral reading. For Arts and Science Freshmen, elective for Arts and Science Sophomores.

Three exercises per week. 1st S.

4. History of Europe since 1815.

Recitations and collateral reading. For Arts and Science Freshmen, elective for Arts and Science Sophomores.

Three exercises per week. 2d S.

5. American History to 1783.

For Agricultural Seniors, elective for Arts and Science Juniors.

Three exercises per week. 1st S.

6. Political and Constitutional History of the United States from 1783 to 1837.

For Agricultural Seniors, elective for Arts and Science Juniors.

Three exercises per week. 2d S.

7. Political and Constitutional History of the United States since 1837.

Elective for Arts and Science Seniors.

Three exercises per week. 1st S.

HORTICULTURE.

PROF. PICKETT, MR. LUMSDEN, MR. BUNTING.

With the rapid development of agricultural education, the science of horticulture has become more clearly defined. Horticulture is sub-divided into five classes, viz.: (1) Pomology, or Fruit Growing; (2) Olericulture, or Vegetable Gardening; (3) Floriculture, or Flower Growing; (4) Landscape Gardening; and (5) Nursery Practice.

1. Principles of Horticulture. Prof. Pickett.

This course is elementary, and comprises the fundamentals of horticulture, emphasizing the sciences upon which horticulture

rests and the scope and importance of its field. For Agricultural Freshmen. First eight weeks.

Three exercises per week. 1st S.

2. Olericulture. Mr. Bunting.

Lectures and recitations upon the culture, classification and identification of vegetables. The storing and marketing of vegetables are also considered. For Agricultural Freshmen.

Open only to those who have completed Horticulture 1.

Two exercises per week. 2d S.

3. Practical Pomology.

Dealing with problems of fruit growing such as location, choice of site, kind and adaptability of soil for fruit growing, soil management, planting of orchards, pruning, sprays and spraying, thinning, harvesting and marketing. Lectures and laboratory work. For Agricultural Sophomores.

Three exercises per week. 2d S.

4. Greenhouse Construction and Management. Mr. Lumsden.

Lectures, recitations and laboratory work. This course aims to familiarize the student with modern methods of greenhouse work and the more important plants grown under glass. Soils, varieties, culture, marketing, enemies, etc., are studied. Each student is required to do practical work in propagating, potting, watering, ventilating, etc. A study is made of the history and development of different types of greenhouses, including methods of heating and general management. Elective for Agricultural Juniors.

Two exercises per week. 1st S.

5. Landscape Gardening. Mr. Lumsden.

An elementary course in ornamental and landscape gardening with special reference to the beautifying of home surroundings. Elective for Agricultural Juniors.

Two exercises per week. 2d S.

6. Vegetable Gardening under Glass. Mr. Lumsden.

A study of the methods of growing market vegetables in greenhouses. Lectures and practical exercises in the greenhouse. Elective for Agricultural Seniors.

Two exercises per week. 2d S.

7. Nursery Management. Prof. Pickett.

A study of the methods of propagation and the care of trees, shrubs and perennial plants in the nursery. Lectures, reference readings and practice. Elective for Agricultural Juniors.

Three exercises per week. 2d S.

8. Viticulture and Small Fruit Culture.

A comprehensive study of the grape and small fruits such as the strawberry, raspberry, blackberry, currant and gooseberry. Each fruit is studied with reference to all the essential points such as history, classification, propagation, planting, pruning, enemies, diseases, picking and marketing. Elective for Agricultural Juniors. *Two exercises per week. 1st S.*

9. Commercial Floriculture. Mr. Lumsden.

A study of the growing of cut flowers and decorative plants. Lectures and practical exercises in the greenhouse. Elective for Agricultural Seniors. *Three exercises per week. 1st S.*

10. Evolution and Improvement of Plants. Prof. Pickett.

The application of the principles of evolution to the improvement of plants. Variation, selection and heredity as applied to the problems of plant breeding in agricultural practice. Elective for Agricultural Seniors. *Two exercises per week. 2d S.*

11. Systematic Pomology and Commercial Orchardling.

The first eight weeks of the semester are devoted to a study of the leading varieties of fruits and their adaptations, with special reference to New England conditions. During the remainder of the semester this course deals with the management of commercial orchards, problems of marketing, packing, transportation and coöperation. Lectures, reference reading and laboratory work. Elective for Agricultural Seniors.

Four exercises per week. 1st S.

12. Advanced Landscape Gardening. Mr. Lumsden.

A study of the principles and composition of landscape gardening as applied to public and private grounds. Lectures, reference readings and plans. Elective for Agricultural Seniors.

Open only to students who have completed Horticulture 7.

Two exercises per week. 2d S.

13. Advanced Vegetable Gardening. Mr. Bunting.

The management of commercial vegetable gardening establishments; rotation of crops, manures, markets and special crops. Elective for Agricultural Seniors.

Two exercises per week. 2d S.

14. Cold Storage and Horticultural Manufactures. Prof. Pickett.

This course embraces a study of the methods and principles involved in the building and refrigeration of fruit storage houses and in the manufacture of fruit and vegetable products. The

efficiency of various refrigerants and insulating systems is discussed in relation to cold storage. The processes of canning and evaporating fruits and vegetables, the manufacture and bottling of fruit juices, and the relation of moulds, yeasts and bacteria to these processes are taught. Lectures, assigned reading and laboratory work. Elective for Agricultural Seniors.

Three exercises per week. 2d S.

LATIN.

1. Livy (book I); Pliny (Letters).

Elective for Arts and Science Freshmen. Open only to students who have offered Advanced Latin for entrance.

Three exercises per week. 1st S.

2. Terence (Andria and Phormio).

Continuation of Latin 1. Elective for Arts and Science Freshmen.

Three exercises per week. 2d S.

3. Tacitus (Annals).

Elective for Arts and Science Sophomores.

Three exercises per week. 1st S.

4. Horace (Odes and Epodes).

Continuation of Latin 3. Elective for Arts and Science Sophomores.

Three exercises per week. 2d S.

MACHINE DESIGN.

PROF. PUTNAM, MR. LATON.

1. Mechanism. Prof. Putnam.

The study of machine parts with respect to their forms, motions and modes of connection; the kinematics of fluids; the theory of the slide valve. For Elective and Mechanical Sophomores.

Open only to students who have completed Mathematics 1 to 2.

Three exercises per week. 1st S.

2. Mechanism. Prof. Putnam.

Continuation of Course 1, including the study of elementary machine design. For Electrical and Mechanical Sophomores.

Three exercises per week. 2d S.

3. Theoretical Mechanics.

Composition and resolution of forces, conditions of equilibrium, center of gravity, with special attention to plane surfaces, friction, the simple machines, laws of motion, motion in a resist-

ing medium, constrained motion, impact, work and energy, moment of inertia, particularly of plane surfaces; also strength of materials. For Engineering Juniors.

Open only to students who have completed Mathematics 1 to 7 inclusive and Physics 1. Four exercises per week. 1st S.

4. Designing and Drawing. Prof. Putnam.

The application of Course 3 to practical problems worked out in the drafting room. For Electrical and Mechanical Juniors.

Open only to students who have completed Mathematics 1 to 7 inclusive, Physics 1 and Machine Design 1 and 2.

Three exercises per week. 1st S.

5. Theoretical Mechanics.

Continuation of Machine Design 3. For Engineering Juniors.

Four exercises per week. 2d S.

6. Shop Machinery. Prof. Putnam, Mr. Laton.

The design of shop machinery of all kinds, except power plant machinery. For Mechanical Juniors.

Three exercises per week. 2d S.

MATHEMATICS.

PROF. PETTEE, ASST. PROF. MOORE.

1. Algebra Completed. Prof. Pettee, Asst. Prof. Moore.

For all Freshmen.

Four exercises per week. 1st S.

2. Solid Geometry with Advanced Course. Asst. Prof. Moore.

For Engineering Freshmen entering without the subject, elective for Agricultural and Arts and Science Freshmen.

Two exercises per week. 1st S.

3. Plane and Spherical Trigonometry. Prof. Pettee, Asst. Prof. Moore.

For all Freshmen. First nine weeks.

Four exercises per week. 2d S.

4. Surveying. Prof. Pettee.

Recitations, field-work and plotting, including compass, transit, plane-table and level work. For Engineering and Agricultural Freshmen, elective for Arts and Science Freshmen. Last eight weeks.

Four exercises per week. 2d S.

5. Analytical Geometry. Prof. Pettee, Asst. Prof. Moore.

For Engineering Sophomores, elective for Arts and Science Sophomores.

Five exercises per week. 1st S.

6. Differential and Integral Calculus. Prof. Pettee, Asst. Prof. Moore.

For Engineering Sophomores, elective for Arts and Science Sophomores. *Five exercises per week. 2d S.*

7. Differential Equations. Prof. Pettee.

Elective for Arts and Science Juniors.

Two exercises per week. 1st S.

8. Quaternions. Prof. Pettee.

Elective for Arts and Science Juniors.

Two exercises per week. 2d S.

9. Astronomy. Prof. Pettee.

Elective for Arts and Science Seniors.

Two exercises per week. 2d S.

***MECHANICAL ENGINEERING.**

PROF. CARDULLO, PROF. HEWITT, PROF. PUTNAM.

7. Thermodynamics. Prof. Cardullo.

Study of the thermodynamic properties of gases and vapors, and of the phenomena of operation of thermodynamic engines; analysis of the causes of energy losses and methods of minimization; interpretation of indicator and temperature-entropy diagrams; study of steam engines and turbines, boilers, gas engines and producers and refrigerating machinery. For Electrical and Mechanical Juniors and Chemical Seniors.

Open only to students who have completed Physics 1 and 2 and Mathematics 1 to 6. Three exercises per week. 1st S.

8. Thermodynamics. Prof. Cardullo.

Continuation of Mechanical Engineering 7. For Electrical and Mechanical Juniors. *Three exercises per week. 2d S.*

9. Mechanical Laboratory. Prof. Cardullo.

Study of apparatus and methods of calibration used in engineering investigations; testing of iron, steel and wood; valve setting and indicator practice. For Electrical and Mechanical Juniors.

Open only to students who have completed Physics 1 and 2 and Mathematics 1 to 6. Two exercises per week. 1st S.

10. Mechanical Laboratory. Prof. Cardullo.

Study of miscellaneous engineering materials and apparatus, and standard methods of testing; lubricants, cement, fuels,

* A fee of two dollars and one-half per semester will be charged to students taking Mechanical Engineering laboratory work, to cover damage and breakage, the balance to be returned at the end of the semester.

boilers, engines, pumps, power-plant appliances and supplies, etc. For Electrical and Mechanical Juniors.

Open only to students who have completed Mechanical Engineering 9. *Two exercises per week. 2d S.*

11. Hydraulics. Prof. Cardullo.

A study of the principles and practice of hydraulic machinery and measurements. For Electrical and Mechanical Seniors.

Open only to students who have completed Machine Design 5 and Physics 1 and 2. *Four exercises per week. 1st S.*

12. Materials of Engineering. Prof. Cardullo.

A study of the properties, commercial forms, methods of preparation and use of engineering materials. For Electrical and Mechanical Seniors. *Two exercises per week. 1st S.*

13. Mechanical Laboratory. Prof. Cardullo.

A critical study and detailed analysis of the performance of engineering apparatus, particularly of steam and gas engines, hydraulic apparatus, etc. For Electrical and Mechanical Seniors. Three hours' credit is given for this course.

Open only to students who have completed Mechanical Engineering 10. *Two exercises per week. 1st S.*

14. Mechanical Laboratory. Prof. Cardullo.

Continuation of Course 13. For Mechanical Seniors. Three hours' credit is given for this course.

Open only to students who have completed Mechanical Engineering 13. *Two exercises per week. 2d S.*

15. Heat Engine Design. Prof. Cardullo.

Study of the structure and proportions of heat engines; design of valves and valve gears, governors, fly wheels and principal members of steam and gas engines and steam turbines. For Mechanical Seniors. *Five exercises per week. 1st S.*

16. Shop Design and Equipment. Prof. Putnam.

A study of the proper choice and arrangement of tools, machinery and equipment of all kinds for shops and factories; the design of suitable buildings for housing the same and estimates of quantities of material and cost of construction. Particular attention will be given to textile mills and machine shops. For Mechanical Seniors. *Four exercises per week. 2d S.*

17. Power Plant Design. Prof. Hewitt, Prof. Cardullo.

A study of different types of power plants, power plant apparatus and equipment and of controlling factors in the cost of

power generation and distribution; the design of a power plant to meet given conditions. For Mechanical Seniors.

Two exercises per week. 2d S.

19. Economics of Engineering. Prof. Cardullo.

A discussion of the principles and practice of systems of shop organization and management, cost keeping, wage payment and methods of cost reduction; also a discussion of engineering finance, welfare work, labor conditions, factory laws, etc. For Electrical and Mechanical Seniors.

Three exercises per week. 2d S.

METEOROLOGY.

1. Meteorology.

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes and methods of prediction of atmospheric changes. For Agricultural Seniors, elective for Arts and Science Seniors.

Two exercises per week. 1st S.

MILITARY SCIENCE AND TACTICS.

LIEUT. EDGERLY.

All male students, unless members of the Senior or Junior Class, or unless physically unfit, are required to drill and to attend recitations in Military Science. Military Science 1 to 8 inclusive consists of Military Drill and includes all the practical instruction in the following subjects: Close and Extended Order Drills by Company and Battalion, Advance and Rear Guards, Outposts, Marches, Ceremonies, Battalion Review, Parades and Guard Mounting, Calisthenics and Gymnastics, Rifle Practice, First Aid to the Injured.

1. Military Drill.

For Freshmen.

Two exercises per week. 1st S.

2. Military Drill.

Continuation of Military Science 1. For Freshmen.

Two exercises per week. 2d S.

3. Military Drill.

For Sophomores.

Two exercises per week. 1st. S.

4. Military Drill.

Continuation of Military Science 3. For Sophomores.

Two exercises per week. 2d S.

5. Military Drill.

Elective for Juniors.

Two exercises per week. 1st. S.

6. Military Drill.

Continuation of Military Science 5. Elective for Juniors.

*Two exercises per week. 2d S.***7. Military Drill.**Elective for Seniors only. *Two exercises per week. 1st. S.***8. Military Drill.**

Continuation of Military Science 5. Elective for Seniors only.

*Two exercises per week. 2d S.***9. Infantry Drill Regulations.**

Practical instruction and lectures. For Freshmen.

*One exercise per week. 1st S.***10. Manual of Guard Duty and Small Arms Firing Regulations.**

For Freshmen.

*One exercise per week. 2d S.***11. Military Primer.**

Recitations and map problems covering advance and rear guards; outposts; patrols, etc.

For Sophomores. *One exercise per week. 1st S.***12. Military Map Reading and Sketching.**

For Sophomores.

*One exercise per week. 2d S.***13. Field Service Regulations.**

Preparation of problems requiring the issuing of field orders, knowledge of marches, transportation, subsistence, etc. Elective for Juniors.

*One exercise per week. 1st S.***14. Army Regulations and Preparation of Requisitions, etc.**

Elective for Juniors.

*One exercise per week. 2d S.***15. Army Organization and Administration.**

Lectures and preparation of military papers. Elective for Seniors only.

*One exercise per week. 1st S.***16. Army Organization and Administration.**

Continuation of Course 15. Elective for Seniors only.

*One exercise per week. 2d S.***PHILOSOPHY AND PEDAGOGY.**

PROF. GROVES.

The certification of teachers in the public schools is usually based upon the candidate's preparation in the subjects covered by Philosophy 1, 2, 3, 4 and 5. In many states, certification is

required of public school teachers; in other states, as in New Hampshire, it is a great advantage.

1. Psychology and Logic.

An introduction to the study of mental life and the condition of valid thinking. The practical needs of the student are related as closely as possible to the work of the course. For Arts and Science Sophomores or Seniors, elective for Agricultural Sophomores.

Three exercises per week. 1st. S.

2. The History of Educational Theory.

The greater part of the course is taken up with the study of the modern educational reformers, Comenius, Rousseau, Pestalozzi, Froebel, Spencer and Herbart. Elective for Arts and Science Freshmen and Sophomores.

Two exercises per week. 2d S.

3. Philosophy of Education.

The meaning of education is defined from the aspect of the biological, the physiological, the social, the psychological and the philosophical. Horne's Philosophy of Education. Elective for Agricultural Sophomores or Juniors, Arts and Science Juniors and Chemical Seniors.

Three exercises per week. 2d S.

4. The Problems of School Education.

The method of the recitation; management and discipline of classes, observation of teaching. Elective for Arts and Science Students.

Open only to students who have completed one course in Philosophy.

Three exercises per week. 1st S.

5. School Administration.

Courses of study; school hygiene; school law; a discussion of the essential elements of good administration. Elective for Arts and Science Students.

Open only to students who have completed one course in Philosophy.

Three exercises per week. 2d. S.

6. Introduction to Philosophy.

A general survey of the field of philosophy with special reference to the definition of its problems, its spirit, its method and its relation to the various sciences; the theory of thought and knowledge; the doctrine of nature and of mind. This course aims to acquaint students with the ultimate problems of thought and to suggest possible solutions. Elective for Arts and Science Students.

Open only to students who have completed one course in Philosophy.

Three exercises per week. 2d. S.

9. Ethics.

A study of the development of ethical thought, the various types of ethical theory and the philosophic basis of social and political rights and duties. Elective for Arts and Science Students.

Open only to students who have completed Philosophy 1 and Political Science 1. Three exercises per week. 1st S.

PHYSICS.

PROF. NESBIT.

1. Mechanics and Heat.

Mechanics: The principles and laws of general physics are illustrated by a number of experiments, and the student is taught to make ready application of his mathematics in the solution of problems. It is intended to provide a foundation in the dynamics of solids, liquids and gases, and also in the subjects of statics and hydrostatics. Instruction is given by lectures, recitations and problem work. The text used is Watson's Physics. Reference is made to Ames' Theory of Physics, Duff's Textbook of Physics, and other standard treatises.

Heat: The theories of heat are briefly discussed. The subdivisions of the subject, such as the nature of heat, its effects, thermometry, sources of heat, the transference and transformations of heat are considered in detail. Constant attention is given to the relation of these topics to the subject of thermodynamics. Watson's Physics is used as a text. For Agricultural and Engineering Sophomores, elective for Arts and Science Course Sophomores.

Three exercises per week. 1st S.

2. Light, Sound and Electricity.

Light: The subject is approached from the geometrical and physical standpoint. A number of experiments are performed illustrative of wave motion in general, followed by a study of that form of wave motion upon which the modern theory is based. The subject is developed progressively and due attention is given to such subjects as reflection, refraction, color, the spectrum, and interference and polarization phenomena. The student makes a careful study of optical instruments of all classes. Watson's Physics is used as the text.

Sound: The course consists of lectures and recitations, considerable emphasis being laid upon the relation of the subject to the transmission of speech. The text used is Stone's Elementary Lessons in Sound.

Electricity and Magnetism: Numerous experiments are performed to illustrate the various phenomena of electrostatics, magnetism, current electricity and electric waves. As the course advances, the attention of the student is constantly called to the applications of electricity to the arts and sciences. S. P. Thompson's Elementary Lessons in Electricity and Magnetism is used as a text. For Agricultural and Engineering Sophomores, elective for Arts and Science Sophomores.

Three exercises per week. 2d S.

3. Physical Measurements.

This course is intended to serve as an introduction to the work in the Physical Laboratory. It familiarizes the student with the precautions necessary in taking experimental data and of properly using his data in order to secure the most reliable results. A large number of problems are solved, illustrating the determination of physical constants and in deducing the constants of empirical equations. The work in Precision of Measurements consists of a course of lectures and the solution of a number of problems illustrating the application of the subject. For Electrical and Mechanical Juniors, elective for Arts and Science Juniors.

One exercise per week. 1st S.

4. Physical Laboratory.

The apparatus employed in the experimental part of Courses 7 and 8 is adapted to no special laboratory manual, and either notes are prepared for students' use or reference is made to the works of Watson, Ames and Bliss, E. L. Nichols, H. M. Godwin and others. The laws of general physics are investigated experimentally. The student is encouraged to acquire skill in the manipulation of apparatus, habits of clearness and neatness in keeping records, as well as enthusiasm for independent and original investigation. A careful study is made of the Analytical Balance, time measuring devices, heat measurements, the microscope, spectroscope, lens combinations, photometry, the laws of vibrating strings and the simple electrical measurements. The student has practice in the calibration of galvanometers and ammeters, the determination of the constants of instruments, the measurement of voltages, resistances, etc.

On the completion of Courses 4 and 5, an examination is given to test the student's knowledge of physical research, both in attacking a given problem and in thinking and acting for himself. For Electrical and Mechanical Juniors, elective for Arts and Science Juniors.

Three exercises per week. 1st S.

5. Physical Laboratory.

A continuation of Course 4. For Electrical and Mechanical Juniors, elective for Arts and Science Juniors.

Four exercises per week. 2d S.

A fee of ten dollars is required in Courses 4 and 5 to cover breakage, etc. Any unexpended balance is refunded to the student at the close of the college year.

6. Physical Laboratory.

Physical Laboratory work. Similar to Courses 4 and 5. Ewell's Physical Chemistry is used with this course. For Chemical Juniors.

Two exercises per week. 1st S.

7. Physical Laboratory.

Continuation of Course 6 and is largely devoted to experimental work in Physical Chemistry.

Four exercises per week. 2d S.

8. Physical Laboratory.

For Agricultural Sophomores.

One exercise per week. 2d S.

POLITICAL SCIENCE.

PROF. SCOTT.

1. Political Economy.

An elementary course, with lectures upon some of the practical questions of the day. For Arts and Science Sophomores, Agricultural Juniors and Engineering Seniors.

Three exercises per week. 2d S.

2. Laws of Business.

Recitations supplemented by lectures and the discussion of cases. Elective for Arts and Science Juniors and Seniors and Agricultural Seniors.

Three exercises per week. 1st S.

3. American Constitutional Law.

Use is made of Pomeroy's Constitutional Law, which is supplemented by the decisions of the United States Supreme Court. Special attention is given to the connections between American constitutions and American political history. Elective for Arts and Science Juniors and Seniors and Agricultural Seniors.

Three exercises per week. 1st S.

4. Money and Banking.

Recitations, readings and lectures. Elective for Agricultural Seniors and Arts and Science Juniors and Seniors.

Political Science 4 and 5 are given in alternate years. Political Science 4 will be offered in the year 1910-'11.

Open only to students who have completed Political Science 1.
Three exercises per week. 2d S.

5. Public Finance.

Recitations, readings and lectures. Elective for Agricultural Seniors and Arts and Science Juniors and Seniors.

Political Science 4 and 5 are given in alternate years. Political Science 5 will be offered in the year 1909-'10.

Open only to students who have completed Political Science 1.
Three exercises per week. 2d S.

SHOP WORK.

PROF. CARDULLO, MR. BROWN, MR. LITTLE.

Three hours' work in the shop is reckoned as one exercise.

1a. Wood Work. Mr. Little.

Exercises in carpentry work, joinery and pattern making. For Engineering Freshmen.

Two and one half exercises per week. 1st S.

1b. Wood Work. Mr. Little.

Same as Course 1a. Elective for Arts and Science Freshmen.

Two exercises per week. 1st S.

2. Forging. Mr. Brown.

This course consists of exercises in upsetting, drawing, forming and welding. For Engineering Freshmen. (Division 2.) First nine weeks.

Two exercises per week. 2d S.

3. Forging.

Same as Shop Work 2. For Electrical and Mechanical Sophomores, (Division 1).

Two exercises per week. 1st S.

4. Machine Work. Mr. Brown.

A course in Turning, Facing, Thread Cutting, Milling, Shaping, Scraping, Filing and Planing. For Electrical and Mechanical Sophomores.

Two and one half exercises per week. 2d S.

9. General Machine Work. Mr. Brown.

Continuation of Shop Work 4. For Electrical and Mechanical Juniors.

One exercise per week. 1st S.

10. Manufacturing. Mr. Brown.

Construction and use of jigs and special fixtures; use of limit gauges, special tools, turret and screw machinery; manufacture

of some simple machine, using special appliances. For Electrical Juniors, elective for Mechanical Juniors.

One exercise per week. 2d S.

11. Special Shop Work.

Work arranged to suit the needs of particular students.

12. Special Shop Work.

13. Wood Work.

Same as Shop Work 1. For Agricultural Freshmen. Last nine weeks.

One and one half exercises per week. 1st S.

14. Forging. Mr. Brown.

For Agricultural Freshmen.

Two exercises per week. 2d S.

15. Machine Work. Mr. Brown.

Same as Shop Work 4. For Chemical Seniors.

Two exercises per week. 1st S.

†SPANISH.

1. Elementary Spanish.

This course will consist of an elementary study of Spanish grammar, supplemented and followed by reading of easy Spanish texts. Elective for Arts and Science Juniors.

Three exercises per week. 1st S.

2. Elementary Spanish.

This course will consist of a thorough review of Spanish grammar, based on the texts studied in Spanish 1, and reading of more advanced Spanish texts. Elective for Arts and Science Juniors.

Open only to students who have completed Course 1.

Three exercises per week. 2d S.

ZOOLOGY.

PROF. SANDERSON, MR. JACKSON.

The courses in Zoölogy are arranged in sequence for those studying Agriculture or Economic Entomology, and for those desiring a more general course fitting them for teaching or for medical studies, though any courses offered may be taken by those who have completed previous courses necessary.

1. Invertebrate Zoology.

The structure and life of the invertebrate animals, except in-

†Spanish 1 and 2 will not be given in 1909-'10.

sects. Lectures and laboratory dissections of typical forms. For Agricultural Sophomores, elective for Arts and Science Freshmen and Sophomores. *Three exercises per week. 1st S.*

2. Vertebrate Anatomy and Physiology.

The comparison of anatomy and physiology of vertebrate animals, the general physiology of higher animals, and laboratory dissections of a few typical forms. For Agricultural Sophomores, elective for Arts and Science Freshmen and Sophomores.

Three exercises per week. 2d S.

3. General Entomology.

A general survey of the structure, habits and classification of the different orders of insects. Lectures, laboratory dissections and classification. For Agricultural Juniors, elective for Arts and Science Juniors.

Open only to students who have completed Courses 1 and 2.

Three exercises per week. 2d S.

4. Economic Entomology.

Insects affecting crops, domestic animals, etc., their life, histories and habits and the methods of combating them; special consideration of general farm methods for control of insects affecting staple crops, and of spraying, machinery and insecticides for combating truck and fruit insects. For Agricultural Juniors, elective for Arts and Science Juniors.

Three exercises per week. 1st S.

5. Advanced Economic Entomology.

The methods of study and general principles of combating insect pests; the literature and history of economic entomology; practice in determining and rearing and combating insect pests. Elective for Agricultural Juniors or Seniors.

Open only to students who have completed Zoölogy 3 and 4.

Three exercises per week. 1st S.

6. Advanced Economic Entomology.

Continuation of Course 6. Elective for Agricultural Juniors and Seniors.

Three exercises per week. 2d S.

7. General Physiology.

The vital phenomena of animal life with special reference to the nervous, digestive, muscular, secretory and sensory processes in the higher animal forms. Elective for Agricultural and Arts and Science Juniors or Seniors.

Open only to students who have completed Zoölogy 1 and 2.

Three exercises per week. 2d S.

8. Evolution.

Lectures taking up the problems of variation, heredity, breeding, and selection from an experimental standpoint, and discussions of recent theories with their bearings on the question of evolution. This course is a basis for advanced work in plant and animal breeding. For Agricultural Seniors, elective for Arts and Science Juniors and Seniors.

Three exercises per week. 1st S.

10. Advanced Zoology.

This course is arranged to suit the individual needs of students who elect Zoölogy for Senior year.

Open only to students who have completed previous courses and have shown proficiency in Zoölogy.

Three or four exercises per week. 1st S.

11. Advanced Zoology.

Continuation of Course 10.

Open only to students who have completed Course 10.

Three or four exercises per week. 2d S.

12. Biological Seminar.

Reports and discussions upon current literature of Zoölogy and Botany, special topics and observations. Elective for Agricultural and Arts and Science Juniors and Seniors.

One exercise per week throughout the year.

FOUR YEAR COURSES.

COURSES OF STUDY AND SCHEDULE OF HOURS.

(For details see Description of Studies.)

Attendance at Chapel exercises is required of all students and attendance at Military Drill is required of all male students, unless members of the Senior or Junior class or unless physically unfit.

AGRICULTURAL COURSE.

Freshman Year.

FIRST SEMESTER.

<i>Chemistry 1</i>	Inorganic Chemistry.....	3
<i>Drawing 1b</i>	Industrial Drawing.....	2
<i>English 1</i>	English Composition and Rhetoric	3
<i>French 1 or</i>	Elementary French.....	3
<i>German 1</i>	Elementary German.....	
<i>Horticulture 1</i>	Principles of Horticulture (first eight weeks).....	1½

<i>Mathematics</i> 1	Algebra	4
* <i>Mathematics</i> 2	Solid Geometry.....	2
<i>Military Science</i> 1	Drill	1
<i>Military Science</i> 9	Infantry Drill Regulations.....	1
<i>Shop Work</i> 13	Wood Shop (last nine weeks)...	1½

SECOND SEMESTER.

<i>Chemistry</i> 2	Inorganic Chemistry	2
<i>Drawing</i> 4	Design of Farm Buildings.....	2
<i>English</i> 2	English Composition and Rhetoric	3
<i>French</i> 2 or	Elementary French.....	3
<i>German</i> 2	Elementary German.....	
<i>Horticulture</i> 2	Olericulture	2
<i>Mathematics</i> 3	Trigonometry (first nine weeks)...	2½
<i>Mathematics</i> 4	Surveying (last eight weeks) ...	1½
<i>Military Science</i> 2	Drill	1
<i>Military Science</i> 10	Manual of Guard Duty, etc.....	1
<i>Shop Work</i> 14	Forge Shop	2

Sophomore Year.

FIRST SEMESTER.

<i>An. Husb.</i> 1	Types and Breeds of Livestock...	3
<i>Botany</i> 1	General Botany	3
<i>Chemistry</i> 4	Qualitative Analysis	3
† <i>German</i> 3	German Prose of the Nineteenth Century	3
<i>Military Science</i> 3	Drill	1
<i>Military Science</i> 11	Military Primer	1
† <i>Philosophy</i> 1	Psychology	3
<i>Physics</i> 1	Mechanics and Heat.....	3
<i>Zoölogy</i> 1	Invertebrate Zoölogy.....	3

SECOND SEMESTER.

<i>Botany</i> 2	General Botany	3
<i>Chemistry</i> 6	Organic Chemistry	3
† <i>German</i> 4	Scientific German.....	3
<i>Horticulture</i> 3	Practical Pomology	3
<i>Military Science</i> 4	Drill	1
<i>Military Science</i> 12	Military Map Reading and Sketching	1
† <i>Philosophy</i> 3	Philosophy of Education	3
<i>Physics</i> 2	Light, Sound and Electricity ...	3
<i>Physics</i> 8	Physical Laboratory.....	1
<i>Zoölogy</i> 2	Vertebrate Anatomy and Physiology	3

* Elective.

† Students are required to elect either German 3 and 4 or Philosophy 1 and 3. Students who elect Philosophy in place of German in the first semester will take Political Science 1 in the second semester, leaving Philosophy 3 until the second semester of the Junior Year.

Junior Year.

Elect courses to make a total of at least 18 hours.

FIRST SEMESTER.

<i>Agronomy</i> 1	Farm Equipment and Farm Crops	3
* <i>An. Husb.</i> 5	Poultry	2
<i>Botany</i> 3	Plant Pathology	3
<i>Dairying</i> 1	Farm Dairying	4
<i>Forestry</i> 1	Principles of Forestry	3
* <i>Horticulture</i> 4	Greenhouse Construction and Management	2
* <i>Horticulture</i> 8	Viticulture and Small Fruit Culture	2
* <i>Military Science</i> 5	Drill	1
* <i>Military Science</i> 13	Field Service Regulations	1
<i>Zoölogy</i> 4	Economic Entomology	3

SECOND SEMESTER.

<i>Agronomy</i> 2	Soils and Soil Physics	3
<i>An. Husb.</i> 3	Feeds and Feeding	3
* <i>An. Husb.</i> 4	Veterinary Science	3
* <i>An. Husb.</i> 6	Advanced Livestock	3
* <i>Botany</i> 4	Mycology	3
* <i>Botany</i> 5	Plant Physiology	3
* <i>Botany</i> 10	Bacteriology	3
* <i>Dairying</i> 3	Technology of Milk	2
<i>Geology</i> 2	Elementary Geology	3
* <i>Horticulture</i> 5	Landscape Gardening	2
* <i>Horticulture</i> 7	Nursery Management	3
* <i>Military Science</i> 6	Drill	1
* <i>Military Science</i> 14	Army Regulations	1
<i>Political Science</i> 1	Political Economy	3
* <i>Zoölogy</i> 6	Advanced Economic Entomology.	3
* <i>Zoölogy</i> 7	General Physiology	3

During the Junior Year students who desire and are qualified to take up work in the Biological or Chemical Divisions of the Agricultural Course may substitute work in these divisions for Dairying 1 and Animal Husbandry 3. Students have also an opportunity to elect courses in Animal Husbandry, Dairying and Zoölogy on the one hand, and in Botany and Horticulture on the other.

Senior Year.

FIRST SEMESTER.

Elect six hours in addition to required work.

* <i>Agronomy</i> 3	Soil Management and Fertility..	3
<i>Agronomy</i> 5	Agricultural Seminar	2
* <i>An. Husb.</i> 7	Live Stock Management	3
* <i>Botany</i> 6	Plant Histology	3
* <i>Botany</i> 9	Systematic Botany	3
* <i>Dairying</i> 4	Factory Management	3
* Elective.		

*Dairying 6	Dairy Research	2
*Forestry 2	Forest Technology	3
*Forestry 3	Systematic Arboriculture.....	3
History 5	American History to 1783	3
*Horticulture 9	Commercial Floriculture	3
*Horticulture 11	Systematic Pomology and Com- mercial Orchardng	4
Meteorology 1	Meteorology	2
Thesis	.....	2
Zoölogy 8	Evolution	3
*Zoölogy 10	Advanced Zoölogy.....	3 or 4
*Zoölogy 11	Advanced Zoölogy.....	3 or 4

SECOND SEMESTER.

Elect six hours in addition to required work.

*Agronomy 4	Manures and Fertilizers	2
Agronomy 6	Agricultural History and Econ- omics (first nine weeks).....	2
Agronomy 7	Farm Mechanics (last eight weeks)	2
*An. Husb. 2	Principles of Breeding	2
*Botany 5	Plant Physiology	3
*Botany 10	Bacteriology	3
*Dairying 2	Advanced Butter Making	3
*Dairying 5	Dairy Bacteriology and Cheese Making	2
English 6	Argumentation	3
History 6	Const. and Political History of U. S. (1783-1837).....	3
*Horticulture 6	Vegetable Gardening Under Glass	2
*Horticulture 10	Evolution and Improvement of Plants	2
*Horticulture 12	Advanced Landscape Gardening..	2
*Horticulture 13	Advanced Vegetable Gardening...	2
*Horticulture 14	Cold Storage and Horticultural Manufactures	3
Thesis	.....	2
*Zoölogy 6	Advanced Economic Entomology..	3
*Zoölogy 7	General Physiology	3

In addition to the above listed courses a student may elect any other courses offered in the college for which he is qualified.

ARTS AND SCIENCE COURSE.

The requirements for graduation from the Arts and Science Course include (1) the completion of all required studies, including two years of science, (2) the completion of one hundred and forty-four semester hours and (3) the election of studies during the Sophomore, Junior and Senior Years according to the group system.

The group system requires that all Arts and Science Course students shall elect one *major* and two *minor* courses; the *major*

*Elective.

to consist of twenty-one credit hours including thesis, in one of the three groups, in addition to the required work; and the *minors* to consist of fifteen credit hours in each of the other two groups, in addition to the required work.

One week previous to making elections for the Junior Year, a student must submit to the Course Committee for approval the selection of studies to satisfy the major requirements.

GROUP I.

Languages and Literature:—English; French; German; Latin; Spanish.

GROUP II.

Mathematics and Sciences:—Mathematics; Zoology; Drawing; Agriculture; Mechanical Engineering; Electrical Engineering; Chemistry; Botany; Physics; Geology; Meteorology.

GROUP III.

History; Social Science and Philosophy:—History; Political Science; Philosophy and Pedagogy.

Freshman Year.

FIRST SEMESTER.

* <i>Botany 1</i>	General Botany	3
* <i>Chemistry 1</i>	Inorganic Chemistry	3
* <i>Drawing 1b</i>	Industrial Drawing	2
<i>English 1</i>	English Composition and Rhetoric	3
<i>French 1</i> or	Elementary French.....	3
<i>German 1</i>	Elementary German	
† <i>History 1</i> or	European History, 476-1492....	3
† <i>History 3</i>	European History, 1715-1815....	
* <i>Latin 1</i>	Livy, Pliny	3
<i>Mathematics 1</i>	Algebra	4
* <i>Mathematics 2</i>	Solid Geometry.....	2
<i>Military Science 1</i>	Drill	1
<i>Military Science 9</i>	Infantry Drill Regulations.....	1
* <i>Shop Work 1b</i>	Wood Work	2
* <i>Zoölogy 1</i>	Invertebrate Zoölogy.....	3

SECOND SEMESTER.

* <i>Botany 2</i>	General Botany	3
* <i>Chemistry 2</i>	Inorganic Chemistry	2
† <i>Drawing 16</i>	Free-Hand or Charcoal Drawing (Last eight weeks)	1½
<i>English 2</i>	English Composition and Rhetoric	3

* Elective.

† Students changing from other courses to the Arts and Science Course may take the required History in the Sophomore Year. Freshmen are required to elect either Drawing 16 or Mathematics 4.

<i>French</i> 2 or	Elementary French	3
<i>German</i> 2	Elementary German	3
† <i>History</i> 2 or	European History, 1492-1715... }	3
† <i>History</i> 4	European History since 1815... }	3
* <i>Latin</i> 2	Terence	3
<i>Mathematics</i> 3	Trigonometry (first nine weeks)..	2½
† <i>Mathematics</i> 4	Surveying (last eight weeks)....	1½
<i>Military Science</i> 2	Drill	1
<i>Military Science</i> 10	Manual of Guard Duty.....	1
* <i>Philosophy</i> 2	History of Educational Theory...	2
* <i>Zoölogy</i> 2	Vertebrate Anatomy and Physiol- ogy	3

Sophomore Year.

FIRST SEMESTER.

* <i>Botany</i> 1	General Botany	3
* <i>Chemistry</i> 4	Qualitative Analysis	3
* <i>Drawing</i> 9	Free-Hand Drawing.....	2
* <i>English</i> 3	Advanced English Composition and Criticism	3
* <i>German</i> 3	German Prose of the Nineteenth Century	3
* <i>History</i> 1 or	European History, 476-1492 ... }	3
* <i>History</i> 3	European History, 1715-1815... }	3
* <i>Latin</i> 3	Tacitus	3
* <i>Mathematics</i> 5	Analytical Geometry	5
<i>Military Science</i> 3	Drill	1
<i>Military Science</i> 11	Military Primer	1
<i>Philosophy</i> 1	Psychology and Logic	3
* <i>Physics</i> 1	Mechanics and Heat	3
* <i>Zoölogy</i> 1	Invertebrate Zoölogy.....	3

SECOND SEMESTER.

* <i>Botany</i> 2	General Botany	3
* <i>Drawing</i> 10	Free-Hand Drawing.....	2
* <i>English</i> 6	Argumentation	3
* <i>German</i> 4	Scientific German	3
* <i>History</i> 2 or	European History, 1492-1715.. }	3
* <i>History</i> 4	European History since 1815... }	3
* <i>Latin</i> 4	Horace	3
* <i>Mathematics</i> 6	Calculus	5
<i>Military Science</i> 4	Drill	1
<i>Military Science</i> 12	Military Map Reading and Sketching	1
* <i>Physics</i> 2	Light, Sound and Electricity...	3
* <i>Philosophy</i> 2	History of Educational Theory...	2
<i>Political Science</i> 1	Political Economy	3
* <i>Zoölogy</i> 2	Vertebrate Anatomy and Physi- ology	3

* Elective.

† Students changing from other courses to the Arts and Science Course may take the required History in the Sophomore Year. Freshmen are required to elect either Drawing 16 or Mathematics 4.

Junior Year.

All elective.

<i>Botany</i> 6
<i>Botany</i> 9
<i>Chemistry</i> 4
<i>Drawing</i> 11
<i>English</i> 3
<i>English</i> 5
<i>French</i> 3
<i>History</i> 5
<i>Mathematics</i> 7
<i>Military Science</i> 5
<i>Military Science</i> 13
<i>Philosophy</i> 4
<i>Physics</i> 3
<i>Physics</i> 4
<i>Political Science</i> 2
<i>Political Science</i> 3
<i>Spanish</i> 1
<i>Zoölogy</i> 4
<i>Zoölogy</i> 8

FIRST SEMESTER.

Plant Histology	3
Systematic Botany	3
Qualitative Analysis	3
Architectural Drawing	3
Advanced English Composition..	3
English Novel	3
Scientific French	3
American History to 1783.....	3
Differential Equations	2
Drill	1
Field Service Regulations	1
Problems of School Education...	3
Physical Measurements.....	1
Physical Laboratory	1
Laws of Business	3
American Const. Law	3
Elementary Spanish	3
Economic Entomology	3
Evolution	3

SECOND SEMESTER.

<i>Botany</i> 5	Plant Physiology	3
<i>Botany</i> 10	Bacteriology	3
<i>Chemistry</i> 6	Organic Chemistry	3
<i>Drawing</i> 12	Architectural Drawing	3
<i>English</i> 4	English Drama	3
<i>English</i> 6	Argumentation	3
<i>French</i> 4	French Prose, History and Travel	3
<i>Geology</i> 1	Mineralogy	2
<i>Geology</i> 2	Elementary Geology	3
<i>History</i> 6	Const. and Political History of U. S., 1783-1837.....	3
<i>Mathematics</i> 8	Quaternions	2
<i>Military Science</i> 6	Drill	1
<i>Military Science</i> 14	Army Regulations	1
<i>Philosophy</i> 3	Philosophy of Education	3
<i>Philosophy</i> 5	School Administration	3
<i>Physics</i> 5	Physical Laboratory	4
<i>Political Science</i> 4 or	Money and Banking	3
<i>Political Science</i> 5	Public Finance	
<i>Spanish</i> 2	Elementary Spanish	3
<i>Zoölogy</i> 7	General Physiology	3

Senior Year.

All elective.

<i>Botany</i> 6
<i>Botany</i> 9
<i>Chemistry</i> 7
<i>Drawing</i> 13
<i>English</i> 5
<i>French</i> 5

FIRST SEMESTER.

Plant Histology	3
Systematic Botany	3
Physiological Chemistry	2
Advanced Architectural Drawing	3
English Novel	3
French Prose of 19th Century....	3

<i>Geology</i> 3	Historical Geology	3
<i>German</i> 5	Goethe, His Life and Works.....	3
<i>History</i> 7	Const. and Political History of U. S. since 1837	3
<i>Meteorology</i> 1	Meteorology	2
<i>Military Science</i> 7	Drill	1
<i>Military Science</i> 15	Army Organization and Adminis- tration	1
<i>Philosophy</i> 1	Psychology and Logic	3
<i>Philosophy</i> 4	Problems of School Education ...	3
<i>Philosophy</i> 9	Ethics	3
<i>Political Science</i> 2	Laws of Business	3
<i>Political Science</i> 3	American Constitutional Law....	3
<i>Spanish</i> 1	Elementary Spanish	3
<i>Thesis</i>	.....	2
<i>Zoölogy</i> 8	Evolution	3
<i>Zoölogy</i> 10	Advanced Zoölogy.....	3 or 4

SECOND SEMESTER.

<i>Botany</i> 5	Plant Physiology	3
<i>Botany</i> 8	Advanced Botany	3
<i>Botany</i> 10	Bacteriology	3
<i>Drawing</i> 14	Advanced Architectural Drawing	2
<i>English</i> 4	English Drama	3
<i>English</i> 7	American Literature	4
<i>French</i> 6	French Prose of 19th Century....	3
<i>Geology</i> 2	Elementary Geology	3
<i>German</i> 6	Goethe (continued)	3
<i>Mathematics</i> 9	Astronomy	2
<i>Military Science</i> 8	Drill	1
<i>Military Science</i> 16	Army Organization and Adminis- tration	1
<i>Philosophy</i> 5	School Administration	3
<i>Philosophy</i> 6	Introduction to Philosophy.....	3
<i>Political Science</i> 4 or	Money and Banking	3
<i>Political Science</i> 5	Public Finance	
<i>Spanish</i> 2	Elementary Spanish	3
<i>Thesis</i>	.....	1 or 2
<i>Zoölogy</i> 7	General Physiology	3
<i>Zoölogy</i> 11	Advanced Zoölogy.....	3 or 4

ENGINEERING COURSES.

Freshman Year.

FIRST SEMESTER.

<i>Chemistry</i> 1	Inorganic Chemistry	3
<i>Drawing</i> 1a	Industrial Drawing	2½
<i>English</i> 1	English Composition and Rhet- oric	3
<i>French</i> 1 or	Elementary French.....	3
<i>German</i> 1	Elementary German.....	
<i>Mathematics</i> 1	Algebra	4
† <i>Mathematics</i> 2	Solid Geometry	2

† For Freshmen entering without the subject.

<i>Military Science 1</i>	Drill	1
<i>Military Science 9</i>	Infantry Drill Regulations	1
<i>Shop Work 1a</i>	Wood Work	2½
SECOND SEMESTER.		
<i>Chemistry 2</i>	Inorganic Chemistry	2
† <i>Chemistry 4</i>	Qualitative Analysis (first division), (first nine weeks)	3
<i>Drawing 2a</i>	Descriptive Geometry (first division)	3
<i>Drawing 2b</i>	Descriptive Geometry (second division), (first nine weeks)	2
<i>Drawing 3</i>	Continuation of Drawing 2 (second division), (last eight weeks)	2
<i>English 2</i>	English Composition and Rhetoric	3
<i>French 2 or</i>	Elementary French	3
<i>German 2</i>	Elementary German	
<i>Mathematics 3</i>	Trigonometry (first nine weeks)	2½
<i>Mathematics 4</i>	Surveying (last eight weeks)	1½
<i>Military Science 2</i>	Drill	1
<i>Military Science 10</i>	Manual of Guard Duty, etc.	1
† <i>Shop Work 2</i>	Forging (second division), (first nine weeks)	2

* CHEMICAL ENGINEERING COURSE.

Sophomore Year.

FIRST SEMESTER.

<i>Chemistry 5</i>	Qualitative Analysis (first five weeks)	1½
<i>Chemistry 10</i>	Quantitative Analysis (last twelve weeks)	3½
<i>Drawing 7</i>	Elementary Machine Drawing and Free-Hand Drawing of Chem. Apparatus	2
<i>German 3</i>	German Prose of the Nineteenth Century	3
<i>Mathematics 5</i>	Analytical Geometry	5
<i>Military Science 3</i>	Drill	1
<i>Military Science 11</i>	Military Primer	1
<i>Physics 1</i>	Mechanics and Heat	3

SECOND SEMESTER.

<i>Chemistry 6</i>	Organic Chemistry	3
<i>Chemistry 11</i>	Quantitative Analysis	6
<i>German 4</i>	Scientific German	3
<i>Mathematics 6</i>	Differential and Integral Calculus	5
<i>Military Science 4</i>	Drill	1

† Division 1 elects Chemistry 4 instead of Shop Work 2 and Division 2 elects Shop Work 2 instead of Chemistry 4. These divisions are made on the basis of scholarship in Chemistry 1.

Science 12	Military Map Reading and Sketching	1
Physiology	Light, Sound and Electricity	3

Junior Year.

FIRST SEMESTER.

Chemistry 7	Physiological Chemistry	2
Chemistry 8	Organic Chemical Laboratory....	3
Chemistry 12	Advanced Quantitative Analysis..	4
Chemistry 19	Chemical Journals	2
†Chemistry 21	Physical Chemistry	2
Machine Design 3	Theoretical Mechanics	4
Physics 6	Physical Laboratory	2

SECOND SEMESTER.

Chemistry 13	Advanced Quantitative Analysis..	4
†Chemistry 14 and	Industrial Chemistry.....	2
†Chemistry 15 or	Metallurgy	1
†Chemistry 22	Physical and Electro-chemistry }	3
Chemistry 20	Chemical Journals	2
Geology 1	Mineralogy	2
Machine Design 5	Theoretical Mechanics	4
Physics 7	Physical Laboratory	4

Senior Year.

FIRST SEMESTER.

Chemistry 16	Assaying	1
†Chemistry 21	Physical Chemistry	2
Chemistry 23	Chemical Research and Thesis..	8
Elect. Engineering 21	Industrial Electricity	3
Mech. Engineering 7	Thermodynamics	3
Shop Work 15	Machine Shop	2

SECOND SEMESTER.

†Chemistry 14 and	Industrial Chemistry.....	2
†Chemistry 15 or	Metallurgy	1
†Chemistry 22	Physical and Electro-chemistry }	3
Chemistry 24	Thesis	8
Elect. Engineering 22	Industrial Electricity	3
*English 6 or	Argumentation	3
*Philosophy 3	History of Education	3
Political Science 1	Political Economy	3

ELECTRICAL AND MECHANICAL ENGINEERING COURSES.

Sophomore Year.

FIRST SEMESTER.

†Chemistry 4	Qualitative Chemical Analysis...	3
Drawing 5	Descriptive Geometry (first division), (first eight weeks)....	1

* Elective. Chemical Seniors must elect either English 6 or Philosophy 3.

† Given in alternate years.

† Division 1 elects Shop Work 3 instead of Chemistry 4, and Division 2 elects Chemistry 4 instead of Shop Work 3.

<i>Drawing 6a</i>	Elementary Machine Drawing (first division), (last nine weeks)	1½
<i>Drawing 6b</i>	Elementary Machine Drawing (second division)	2
<i>German 3</i>	German Prose of the Nineteenth Century	3
<i>Mathematics 5</i>	Analytical Geometry	5
<i>Machine Design 1</i>	Mechanism	3
<i>Military Science 3</i>	Drill	1
<i>Military Science 11</i>	Military Primer	1
<i>Physics 1</i>	Mechanics and Heat	3
‡ <i>Shop Work 3</i>	Forging (first division)	2

SECOND SEMESTER.

<i>Drawing 8</i>	Machine Drawing	2½
<i>German 4</i>	Scientific German	3
<i>Mathematics 6</i>	Calculus	5
<i>Machine Design 2</i>	Mechanism and Elementary Ma- chine Design	3
<i>Military Science 4</i>	Drill	1
<i>Military Science 12</i>	Military Map Reading and Sketching	1
<i>Physics 2</i>	Light, Sound and Electricity.....	3
<i>Shop Work 4</i>	Machine Work	2½

ELECTRICAL ENGINEERING COURSE.

Junior Year.

FIRST SEMESTER.

<i>Elect. Engineering 1</i>	Dynamo Electric Machinery	3
<i>Machine Design 3</i>	Theoretical Mechanics	4
<i>Machine Design 4</i>	Designing and Drawing	3
<i>Mech. Engineering 7</i>	Thermodynamics	3
<i>Mech. Engineering 9</i>	Mechanical Laboratory	2
<i>Physics 3</i>	Physical Measurements	1
<i>Physics 4</i>	Physical Laboratory	3
<i>Shop Work 9</i>	General Machine Work.....	1

SECOND SEMESTER.

<i>Elect. Engineering 2</i>	Dynamo Electric Machinery	3
<i>Elect. Engineering 4</i>	Electrical Laboratory	3
<i>Machine Design 5</i>	Theoretical Mechanics	4
<i>Mech. Engineering 8</i>	Thermodynamics	3
<i>Mech. Engineering 10</i>	Mechanical Laboratory	2
<i>Physics 5</i>	Physical Laboratory	4
<i>Shop Work 10</i>	Manufacturing	1

Senior Year.

FIRST SEMESTER.

<i>Elect. Engineering 11</i>	Elect. Engineering Practice.....	4
<i>Elect. Engineering 13</i>	Electrical Railways.....	2
<i>Elect. Engineering 15</i>	Electrical Laboratory.....	4

‡ Division 1 elects Shop Work 3 instead of Chemistry 4, and Division 2 elects Chemistry 4 instead of Shop Work 3.

<i>Elect. Engineering</i> 23	Contracts and Specifications.....	1
<i>Mech. Engineering</i> 11	Hydraulics	4
<i>Mech. Engineering</i> 12	Materials of Engineering.....	2
<i>Mech. Engineering</i> 13	Mechanical Laboratory.....	3

SECOND SEMESTER.

<i>Elect. Engineering</i> 12	Elect. Engineering Practice.....	4
<i>Elect. Engineering</i> 16	Electrical Laboratory.....	4
<i>Elect. Engineering</i> 18	Thesis	3
<i>Elect. Engineering</i> 25	Design of Electrical Machinery..	3
<i>Mech. Engineering</i> 19	Economics of Engineering.....	3
<i>Political Science</i> 1	Political Economy.....	3

MECHANICAL ENGINEERING COURSE.

Junior Year.

FIRST SEMESTER.

<i>Elect. Engineering</i> 1	Dynamo Electric Machinery.....	3
<i>Machine Design</i> 3	Theoretical Mechanics.....	4
<i>Machine Design</i> 4	Designing and Drawing.....	3
<i>Mech. Engineering</i> 7	Thermodynamics	3
<i>Mech. Engineering</i> 9	Mechanical Laboratory.....	2
<i>Physics</i> 3	Physical Measurements.....	1
<i>Physics</i> 4	Physical Laboratory.....	3
<i>Shop Work</i> 9	General Machine Work.....	1

SECOND SEMESTER.

<i>Elect. Engineering</i> 2	Dynamo Electric Machinery.....	3
<i>Elect. Engineering</i> 17	Electrical Laboratory.....	1
<i>Machine Design</i> 5	Theoretical Mechanics.....	4
<i>Machine Design</i> 6	Shop Machinery.....	3
<i>Mech. Engineering</i> 8	Thermodynamics	3
<i>Mech. Engineering</i> 10	Mechanical Laboratory.....	2
<i>Physics</i> 5	Physical Laboratory.....	4
‡ <i>Shopwork</i> 10	Manufacturing	1

Senior Year.

FIRST SEMESTER.

<i>Elect. Engineering</i> 19	Dynamo Electric Machinery.....	3
<i>Elect. Engineering</i> 23	Contracts and Specifications.....	1
<i>Elect. Engineering</i> 24	Electrical Laboratory.....	2
<i>Mech. Engineering</i> 11	Hydraulics	4
<i>Mech. Engineering</i> 12	Materials of Engineering.....	2
<i>Mech. Engineering</i> 13	Mechanical Laboratory.....	3
<i>Mech. Engineering</i> 15	Heat Engine Design.....	5

SECOND SEMESTER.

<i>Elect. Engineering</i> 20	Dynamo Electric Machinery....	2
<i>Mech. Engineering</i> 14	Mechanical Laboratory.....	3
<i>Mech. Engineering</i> 16	Shop Design and Equipment.....	4
<i>Mech. Engineering</i> 17	Power Plant Design.....	2
<i>Mech. Engineering</i> 19	Economics of Engineering.....	3
<i>Political Science</i> 1	Political Economy.....	3
<i>Thesis</i>	.....	3

‡ Not a required subject.

AGRICULTURAL COURSE—FRESHMAN YEAR

FIRST SEMESTER						SECOND SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.	Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	English 1	Mathematics 1	Chemistry 1	Military Sci. 1	Drawing 1b	Monday.....	English 2		Chemistry 2	Military Sci. 2	Shop Work 14 (First nine weeks) Mathematics 4 (Last eight weeks)
Tuesday.....		French 1 German 1	Mathematics 1	Mathematics 1	Drawing 1b	Tuesday.....		French 2 German 2	Military Sci. 10	Mathematics 3 (First nine weeks)	Shop Work 14 (First nine weeks) Mathematics 4 (Last eight weeks)
Wednesday.....	English 1		Chemistry 1	Mathematics 1	Horticulture 1 (First eight weeks) Shop Work 13 (Last nine weeks)	Wednesday.....	English 2	Drawing 4 French 2 German 2	Drawing 4 Mathematics 3 (First nine weeks)	Mathematics 3 (First nine weeks)	Drawing 4 Mathematics 4 (Last eight weeks)
Thursday.....		French 1 German 1	Mathematics 1	Mathematics 1	Horticulture 1 (First eight weeks) Shop Work 13 (Last nine weeks)	Thursday.....			Mathematics 3 (First nine weeks)	Horticulture 2 Drawing 4 (First nine weeks) Mathematics 4 (Last eight weeks)	
Friday.....	English 1	Chemistry 1 French 1 German 1	Chemistry 1	Military Sci. 1		Friday.....	English 2	French 2 German 2	Chemistry 2	Military Sci. 2	
Saturday.....			Mathematics 1	Mathematics 1		Saturday.....	Horticulture 2		Mathematics 3 (First nine weeks)	Mathematics 3 (First nine weeks)	

Mathematics 2, First Semester, hours to be arranged.

AGRICULTURAL COURSE—SOPHOMORE YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	* Philosophy 1	Military Sci. 11	Botany 1	Military Sci. 3	Chemistry 4
Tuesday.....	Zoölogy 1	* Philosophy 1	Physics 1	* German 3	Chemistry 4
Wednesday.....	Animal Husb. 1		Botany 1	Botany 1	Chemistry 4
Thursday		* Philosophy 1	Physics 1	* German 3	Animal Husb. 1
Friday.....	Animal Husb. 1		Zoölogy 1	Military Sci. 3	Zoölogy 1
Saturday.....	Botany 1	Botany 1	Physics 1	* German 3	
SECOND SEMESTER					
Monday.....	Chemistry 6	Zoölogy 2	Botany 2	Military Sci. 4	Horticulture 3
Tuesday.....	Political Sci. 1	Chemistry 6	Physics 2	* German 4	Botany 2
Wednesday.....	Physics 8	Physics 8	Physics 8	Military Sci. 12	Botany 2
Thursday.....	Political Sci. 1	Chemistry 6	Physics 2	* German 4	
Friday.....		Horticulture 3	Zoölogy 2	Military Sci. 4	Zoölogy 2
Saturday.....	Political Sci. 1	Horticulture 3	Physics 2	* German 4	

* Elective.

AGRICULTURAL COURSE--JUNIOR YEAR

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	*Horticulture 8	Forestry 1	Zoölogy 4	*Military Sci. 5	Botany 3
Tuesday.....	Botany 3	Forestry 1	Dairying 1	Agronomy 1	*Animal Husb. 5 *Horticulture 4
Wednesday.....	Botany 3	Botany 3	Zoölogy 4	*Horticulture 4	Forestry 1
Thursday.....	Dairying 1	Dairying 1	Dairying 1	Agronomy 1	Zoölogy 4
Friday.....	*Horticulture 8	*Animal Husb. 5	Dairying 1	*Military Sci. 5	Agronomy 1
Saturday.....	Dairying 1	Dairying 1	Dairying 1	*Military Sci. 13	

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	*Horticulture 5	*Dairying 3 *Horticulture 5	Geology 2	*Military Sci. 6	Agronomy 2
Tuesday.....	*Horticulture 7 *Animal Husb. 6	*Philosophy 3 †Political Sci. 1	*Animal Husb. 4	Agronomy 2	*Botany 5 *Botany 10 *Dairying 3 *Zoölogy 6 *Zoölogy 7
Wednesday.....	*Horticulture 5	*Horticulture 5	Animal Husb. 3	Agronomy 2	*Animal Husb. 6 *Horticulture 7 *Zoölogy 6 *Zoölogy 7
Thursday.....	*Horticulture 7 *Animal Husb. 6	*Philosophy 3 †Political Sci. 1	Animal Husb. 3	Geology 2	Geology 2
Friday.....	*Botany 5 *Botany 10	*Botany 5 *Botany 10	*Animal Husb. 4	*Military Sci. 6	Animal Husb. 3
Saturday.....	*Botany 5 *Botany 10	*Philosophy 3 †Political Sci. 1	*Animal Husb. 4 *Zoölogy 6 *Zoölogy 7	*Military Sci. 14	

SECOND SEMESTER

For hours of courses not scheduled, see instructor.
 *Elective. †Required if not previously taken.

AGRICULTURAL COURSE—SENIOR YEAR

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Zoölogy 8	*Animal Husb. 7	*Forestry 3 *Horticulture 9	*Military Sci. 7 *Horticulture 11	Agronomy 5 *Agronomy 3 *Forestry 2
Tuesday.....		*Animal Husb. 7	History 5	*Horticulture 11	*Animal Husb. 7 *Botany 6 *Botany 9
Wednesday.....	Zoölogy 8	Meteorology 1	*Forestry 3 *Horticulture 9	*Agronomy 3 *Dairying 6	*Agronomy 3 *Horticulture 11
Thursday.....	*Botany 6 *Botany 9	*Botany 6 *Botany 9	History 5	*Forestry 2	*Dairying 8 *Horticulture 9
Friday.....	Zoölogy 8	Meteorology 1	*Botany 6 *Botany 9	*Military Sci. 7 *Horticulture 11	
Saturday.....	*Dairying 6 *Forestry 3	*Dairying 6 *Forestry 3	History 5	*Forestry 2	

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	*Horticulture 10	Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	History 6	*Military Sci. 8 *Agronomy 4	*Dairying 2 *Horticulture 14
Tuesday.....	*Horticulture 6	Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	English 6	*Dairying 2	*Animal Husb. 2 *Botany 5 *Botany 10
Wednesday.....	*Horticulture 10	Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	History 6	*Animal Husb. 2 *Horticulture 14	*Dairying 5
Thursday.....	*Dairying 5 *Horticulture 12 *Horticulture 13	Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	English 6	*Agronomy 4 *Military Sci. 8 *Horticulture 14	*Dairying 2 *Horticulture 6
Friday.....	*Botany 5 *Botany 10 *Botany 5 *Horticulture 12 *Horticulture 13	*Botany 5 *Botany 10	History 6		*Dairying 5
Saturday.....		*Horticulture 12 *Horticulture 13	English 6		

SECOND SEMESTER

*Elective.

For hours of courses not scheduled see instructor.

ARTS AND SCIENCE COURSE—FRESHMAN YEAR

FIRST SEMESTER					11-12		P. M.
Day	8-9	9-10	10-11	11-12			
Monday.....	English 1	Mathematics 1 French 1 German 1	* Botany 1 * Chemistry 1	Military Sci. 1			* Drawing 1b * Latin 1
Tuesday.....	* Zoölogy 1	History 1 or History 3	Mathematics 1 * Botany 1 * Chemistry 1	Military Sci. 9			* Drawing 1b * Latin 1
Wednesday.....	English 1	French 1 German 1	Mathematics 1 * Chemistry 1 * Zoölogy 1	* Botany 1			* Latin 1 * Shopwork 1b
Thursday.....		History 1 or History 3	Mathematics 1	Mathematics 1			History 1 or History 3
Friday.....	English 1	* Botany 1 French 1 German 1	* Chemistry 1 * Zoölogy 1	Military Sci. 1			* Shopwork 1b * Zoölogy 1
Saturday.....	* Botany 1		Mathematics 1	Mathematics 1			

SECOND SEMESTER					11-12		P. M.
Day	8-9	9-10	10-11	11-12			
Monday.....	English 2	* Philosophy 2	* Botany 2 * Chemistry 2	Military Sci. 2			Drawing 16 (Last eight weeks) Mathematics 4 (Last eight weeks)
Tuesday.....	* Latin 2	French 2 German 2	Military Sci. 10	Mathematics 3 (First nine weeks)			* Botany 2 Drawing 16 (Last eight weeks) Mathematics 4 (Last eight weeks)
Wednesday.....	English 2	History 2 or History 4	* Philosophy 2	Mathematics 3 (First nine weeks)			* Botany 2 Drawing 16 (Last eight weeks) Mathematics 4 (Last eight weeks)
Thursday.....	* Latin 2	French 2 German 2	Mathematics 3 (First nine weeks)	Mathematics 3 (First nine weeks)			History 2 or History 4
Friday.....	English 2	History 2 or History 4	* Chemistry 2	Military Sci. 2			Drawing 16 (Last eight weeks) Mathematics 4 (Last eight weeks)
Saturday.....	* Latin 2	French 2 German 2	Mathematics 3 (First nine weeks)	Mathematics 3 (First nine weeks)			

* Elective
Mathematics 2, First Semester, hours to be arranged.

ARTS AND SCIENCE COURSE—SOPHOMORE YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	* Philosophy 1 * Mathematics 5	Military Sci. 11	* Botany 1	Military Sci. 3	* Chemistry 4 * English 3
Tuesday.....	* Latin 3 * Mathematics 5	* History 1 * History 3	* Physics 1	* German 3	* Chemistry 4 * English 3
Wednesday.....	* Latin 3 * Mathematics 5	* History 1 * History 3	* Botany 1	* Botany 1	* Chemistry 4 * English 3
Thursday.....	* Latin 3 * Mathematics 5	* History 1 * History 3	* Physics 1	* German 3	* History 1 * History 3
Friday.....	* Botany 1 * Mathematics 5	* Botany 1 * Mathematics 5	* Zoölogy 1	Military Sci. 3	* Zoölogy 1
Saturday.....			* Physics 1	* German 3	
SECOND SEMESTER					
Monday.....	* Latin 4	* Philosophy 2 * Zoölogy 2	* Botany 2	Military Sci. 4	
Tuesday.....	* Mathematics 6 * Latin 4	Political Sci. 1 * History 2 * History 4	English 6 * Physics 2	* German 4	* Botany 2
Wednesday.....	* Mathematics 6		* Botany 2	Military Sci. 12	* Botany 2
Thursday.....	* Mathematics 6	Political Sci. 1 * History 2 * History 4	* English 6 * Physics 2	* German 4	* History 2 * History 4
Friday.....	* Mathematics 6		* Zoölogy 2	Military Sci. 4	* Zoölogy 2
Saturday.....	* Mathematics 6	Political Sci. 1	* English 6 * Physics 2	* German 4	

* Elective.

ARTS AND SCIENCE COURSE—JUNIOR YEAR

FIRST SEMESTER					P. M.	
Day	8-9	9-10	10-11	11-12		
Monday.....		French 3	Zoölogy 4	Military Sci. 5 Political Sci. 3	Chemistry 4 English 3 Spanish 1	
Tuesday.....	Philosophy 4	Political Sci. 2	History 5	English 5	Chemistry 4 English 3 Spanish 1	
Wednesday.....		French 3	Zoölogy 4	Political Sci. 3	Botany 6 Botany 9 Chemistry 4 English 3 Spanish 1	
Thursday ..	Botany 6 Botany 9 Philosophy 4	Political Sci. 2	History 5	English 5	Zoölogy 4	
Friday		French 3	Botany 6 Botany 9	Military Sci. 5 Political Sci. 3	English 3	
Saturday.....	Philosophy 4	Political Sci. 2	History 5	Military Sci. 13 English 5		

SECOND SEMESTER					P. M.	
Day	8-9	9-10	10-11	11-12		
Monday.....	Chemistry 6 Geology 1	French 4 Geology 1	Geology 2 History 6	Military Sci. 6 Philosophy 5	Spanish 2	
Tuesday.....		Chemistry 6 Philosophy 3	English 6	Political Sci. 4 Political Sci. 5	Botany 5 Botany 10 English 4 Spanish 2	
Wednesday		French 4	History 6	Philosophy 5	Spanish 2	
Thursday.....		Chemistry 6 Philosophy 3	English 6	Geology 2 Political Sci. 4 Political Sci. 5	English 4 Geology 2	
Friday	Botany 5 Botany 10 Geology 1	Botany 5 Botany 10 French 4 Geology 1	History 6	Military Sci. 6 Philosophy 5	English 4	
Saturday.....	Botany 5 Botany 10	Philosophy 3	English 6	Military Sci. 14 Political Sci. 4 Political Sci. 5		

For hours of courses not scheduled, see instructor.

All elective.

ARTS AND SCIENCE COURSE—SENIOR YEAR

FIRST SEMESTER						
Day	8-9	9-10	10-11	11-12	P. M.	
Monday.....	German 5 Philosophy 1 Zoölogy 8	Philosophy 9 Political Sci. 2 Philosophy 1	French 5	Military Sci. 7 Political Sci. 3	History 7 Spanish 1	
Tuesday.....	Philosophy 4		French 9	English 5	Spanish 1	
Wednesday.....	German 5 Zoölogy 8	Meteorology 1 Philosophy 9	French 5 *	Political Sci. 3	Botany 6 Botany 9 History 7 Spanish 1	
Thursday.....	Botany 6 Botany 9 Philosophy 4	Botany 6 Botany 9 Political Sci. 2 Philosophy 1	French 9 German 9	English 5		
Friday.....	German 5 Zoölogy 8	Meteorology 1 Philosophy 9	Botany 6 Botany 9 French 5	Military Sci. 7 Political Sci. 3	History 7	
Saturday.....	Philosophy 4	Political Sci. 2	German 9	English 5		

SECOND SEMESTER						
Day	8-9	9-10	10-11	11-12	P. M.	
Monday.....	Philosophy 6	Mathematics 9	French 6 Geology 2	Philosophy 5 English 7 Military Sci. 8	Spanish 2	
Tuesday.....	German 6	Philosophy 3	French 10	Political Sci. 4 or Political Sci. 5	Botany 5 Botany 10 English 4 Spanish 2	
Wednesday.....	Philosophy 6	Mathematics 9	French 6	Philosophy 5 English 7	Spanish 2	
Thursday.....	German 6	Philosophy 3	German 10 French 10	Geology 2 Political Sci. 4 or Political Sci. 5	English 4 Geology 2	
Friday.....	Botany 5 Botany 10 Philosophy 6	Botany 5 Botany 10	French 6	Military Sci. 8 Philosophy 5 English 7	English 4 English 7	
Saturday.....	Botany 5 Botany 10 German 6	Philosophy 3	German 10	Political Sci. 4 or Political Sci. 5		

For hours of courses not scheduled, see instructor.
All elective.

‡ ENGINEERING COURSES—FRESHMAN YEAR

Day	8-9	9-10	10-11	11-12	P. M.
Monday....		English 1 (Div. 1) Mathematics 1 (Div. 2)	Chemistry 1 (Div. 1 & 2)	Military Sci. 1 (Div. 1 & 2)	Drawing 1a (Div. 2) Shopwork 1 (Div. 1)
Tuesday...	English 1 (Div. 2) German 1 (Div. 1)	French 1 (Div. 1 & 2) German 1 (Div. 2)	Mathematics 1 (Div. 2) Military Sci. 9 (Div. 1)	Mathematics 1 (Div. 1)	Drawing 1a (Div. 2) Shopwork 1 (Div. 1)
Wednesday		English 1 (Div. 1) Military Sci. 9 (Div. 2)	Chemistry 1 (Div. 1 & 2)	Mathematics 1 (Div. 1)	Drawing 1a (Div. 1 or 2) Shopwork 1 (Div. 1 or 2)
Thursday..	English 1 (Div. 2) German 1 (Div. 1)	French 1 (Div. 1 & 2) German 1 (Div. 2)	Mathematics 1 (Div. 1 & 2)	Mathematics 1 (Div. 1 & 2)	Drawing 1a (Div. 1) Shopwork 1 (Div. 2)
Friday.....		English 1 (Div. 1)	Chemistry 1 (Div. 1 & 2)	Military Sci. 1 (Div. 1 & 2)	Drawing 1a (Div. 1) Shopwork 1 (Div. 2)
Saturday ..	English 1 (Div. 2) German 1 (Div. 1)	French 1 (Div. 1 & 2) German 1 (Div. 2)	Mathematics 1 (Div. 1 & 2)	Mathematics 1 (Div. 1 & 2)	

† Divisions for English 1, German 1, Mathematics 1 and Military Science 9 will be made by the Elective Committee. Divisions for Drawing 1a and Shopwork 1 will be made by agreement of instructors concerned. Hours for Mathematics 2 will be arranged by instructor.

‡ ENGINEERING COURSES—FRESHMAN YEAR

Day	8-9	9-10	10-11	11-12	P. M.
Monday....	German 2 (Div. 1) Military Sci. 10 (Div. 2)	English 2 (Div. 1)	Chemistry 2 (Div. 1 and 2)	Military Sci. 2 (Div. 1 & 2)	† Chemistry 4 (Div. 1) (First nine weeks) † Drawing 2b (Div. 2) (First nine weeks) Mathematics 4 (Div. 1 & 2) (Last eight weeks)
Tuesday....	† Drawing 2a (Div. 1) English 2 (Div. 2)	† Drawing 2a (Div. 1) French 2 (Div. 1 & 2) German 2 (Div. 2)	† Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 1) (First nine weeks)	† Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 2) (First nine weeks) Military Sci. 10 (Div. 1)	† Chemistry 4 (Div. 1) (First nine weeks) † Drawing 2b (Div. 2) (First nine weeks) Mathematics 4 (Div. 1 & 2) (Last eight weeks)
Wednesday	† Drawing 2b (Div. 2) (First nine weeks) German 2 (Div. 1)	† Drawing 2b (Div. 2) (First nine weeks) English 2 (Div. 1)	† Drawing 2b (Div. 2) (First nine weeks) Mathematics 3 (Div. 1) (First nine weeks)	Mathematics 3 (Div. 2) (First nine weeks)	† Chemistry 4 (Div. 1) (First nine weeks) Mathematics 4 (Div. 1 & 2) (Last eight weeks) † Shopwork 2 (Div. 2) (First nine weeks)
Thursday..	† Drawing 2a (Div. 1) English 2 (Div. 2)	† Drawing 2a (Div. 1) French 2 (Div. 1 & 2) German 2 (Div. 2)	† Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 1 & 2) (First nine weeks)	† Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 1 & 2) (First nine weeks)	† Chemistry 4 (Div. 1) (First nine weeks) Mathematics 4 (Div. 1 & 2) (Last eight weeks) † Shopwork 2 (Div. 2) (First nine weeks)
Friday.....	† Drawing 2b (Div. 2) (First nine weeks) German 2 (Div. 1)	† Drawing 2b (Div. 2) (First nine weeks) English 2 (Div. 1)	Chemistry 2 (Div. 1 & 2)	Military Sci. 2 (Div. 1 & 2)	† Chemistry 4 (Div. 1) (First nine weeks) Mathematics 4 (Div. 1 & 2) (Last eight weeks) † Shopwork 2 (Div. 2) (First nine weeks)
Saturday...	† Drawing 2a (Div. 1) English 2 (Div. 2)	† Drawing 2a (Div. 1) French 2 (Div. 1 & 2) German 2 (Div. 2)	† Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 1 & 2) First nine weeks	† Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 1 & 2) (First nine weeks)	

† Divisions for English 2, German 2, Mathematics 3, and Military Science 10 will be made by the Elective Committee.

† For Divisions in these subjects, see note at bottom of page 79.

CHEMICAL ENGINEERING COURSE—SOPHOMORE YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Military Sci. 3	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
Tuesday	Mathematics 5	Physics 1	† Physics 1	German 3	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
Wednesday	Mathematics 5	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
Thursday	Mathematics 5	Mathematics 5	Military Sci. 11	German 3	Drawing 7
Friday	Mathematics 5	Physics 1		Military Sci. 3	Drawing 7
Saturday	Mathematics 5	Mathematics 5	Physics 1	German 3	
SECOND SEMESTER					
Monday	Chemistry 6			Military Sci. 4	Chemistry 11
Tuesday	Mathematics 6	Chemistry 6	Physics 2	German 4	Chemistry 11
Wednesday	Mathematics 6	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
Thursday	Mathematics 6	Chemistry 6	Physics 2	German 4	Chemistry 11
Friday	Mathematics 6	Mathematics 6	Military Sci. 12	Military Sci. 4	Chemistry 11
Saturday	Mathematics 6	Mathematics 6	Physics 2	German 4	

† This hour may be used in place of the hours scheduled on Monday and Tuesday.

CHEMICAL ENGINEERING COURSE—JUNIOR YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday	Physics 6	Chemistry 19	Machine Design 3	*Military Sci. 5	Physics 6
Tuesday	Chemistry 7	Chemistry 21	Chemistry 12	Chemistry 12	Chemistry 12
Wednesday.....	Chemistry 7	Chemistry 19	Machine Design 3	Chemistry 12	Chemistry 12
Thursday... ..	Machine Design 3	Chemistry 21	Chemistry 8	Chemistry 8	Chemistry 8
Friday.	Chemistry 12	Chemistry 12	Chemistry 12	*Military Sci. 5	Chemistry 8
Saturday.....		Machine Design 3		*Military Sci. 13	
SECOND SEMESTER					
Monday	Geology 1	Geology 1	Machine Design 5	*Military Sci. 6	Chemistry 13
Tuesday.....	Machine Design 5		Chemistry 20	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 13
Wednesday.....	Machine Design 5	Chemistry 13	Chemistry 13	Chemistry 18 Chemistry 14 Chemistry 15 Chemistry 22	Physics 7
Thursday.....	Chemistry 13	Chemistry 13	Chemistry 20		Physics 7
Friday	Geology 1	Geology 1	Physics 7	*Military Sci. 6 Chemistry 14 Chemistry 15 Chemistry 22 *Military Sci. 14	Physics 7
Saturday	Chemistry 13	Chemistry 13	Machine Design 5		

* Elective.

CHEMICAL ENGINEERING COURSE—SENIOR YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Chemistry 23	Chemistry 23	Chemistry 23	*Military Sci. 7 †Chemistry 23	Chemistry 23
Tuesday.....	Elect. Eng. 21	Chemistry 21	Elect. Eng. 21	Elect. Eng. 21	Chemistry 23
Wednesday.....	Shopwork 15	Shopwork 15	Shopwork 15	Mech. Eng. 7	Chemistry 23
Thursday.....	Chemistry 23	Chemistry 21	Chemistry 23	Chemistry 23	Chemistry 23
Friday.....	Elect. Eng. 21	Mech. Eng. 7	Chemistry 23	*Military Sci. 7 †Chemistry 23	Chemistry 23
Saturday.....	Mech. Eng. 7	Chemistry 16	Chemistry 16	Chemistry 16	
SECOND SEMESTER					
Monday.....	Chemistry 24	Chemistry 24	Chemistry 24	*Military Sci. 8 †Chemistry 24	Chemistry 24
Tuesday.....	Political Sci. 1	Elect. Eng. 22	English 6 or Philosophy 3	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 24
Wednesday.....	Elect. Eng. 22	Elect. Eng. 22	Chemistry 24	Chemistry 24	Chemistry 24
Thursday.....	Political Sci. 1		English 6 or Philosophy 3	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 24
Friday.....	Elect. Eng. 22	Chemistry 24	Chemistry 24	*Military Sci. 8 †Chemistry 24	Chemistry 24
Saturday.....	Political Sci. 1		English 6 or Philosophy 3	Chemistry 14 Chemistry 15 Chemistry 22	

* Elective.

† Hours to be arranged for students electing Military Science 7 and 8.

ELECTRICAL AND MECHANICAL ENGINEERING COURSES—SOPHOMORE YEAR

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Military Sci. 11	Machine Design 1	Physics 1 (Div. 1)	Military Sci. 3	Chemistry 4 (Div. 2) Shopwork 3 (Div. 1)
Tuesday.....	Mathematics 5	Physics 1 (Div. 2)	† Physics 1 (Div. 1 & 2)	German 3	Chemistry 4 (Div. 2) Shopwork 3 (Div. 1)
Wednesday.....	Mathematics 5	Machine Design 1		Physics 1 (Div. 1)	Drawing 5 (Div. 1) (First eight weeks) Chemistry 4 (Div. 2)
Thursday.....	Mathematics 5	Mathematics 5	Military Sci. 11	German 3	Drawing 5 (Div. 1) (First eight weeks) Drawing 6a (Last nine weeks) Drawing 6b
Friday.....	Mathematics 5	Physics 1 (Div. 2)	Machine Design 1	Military Sci. 3	Drawing 5 (Div. 1) (First eight weeks) Drawing 6a (Last nine weeks) Drawing 6b
Saturday.....	Mathematics 5	Mathematics 5	Physics 1 (Div. 1 & 2)	German 3	

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Machine Design 2	Machine Design 2	Machine Design 2	Military Sci. 4	Shopwork 4
Tuesday.....	Mathematics 6	Machine Design 2	Physics 2 (Div. 1 & 2)	German 4	Shopwork 4
Wednesday.....	Mathematics 6	Machine Design 2	Military Sci. 12 (Div. 1)	Physics 2 (Div. 2)	Drawing 8 Shopwork 4
Thursday.....	Mathematics 6	Physics 2 (Div. 1)	† Physics 2 (Div. 1 & 2)	German 4	Drawing 8
Friday.....	Mathematics 6	Mathematics 6	Military Sci. 12 (Div. 2)	Military Sci. 4	Drawing 8
Saturday.....	Mathematics 6	Mathematics 6	Physics 2 (Div. 1 & 2)	German 4	

SECOND SEMESTER

† This hour may be used in place of the hours scheduled on Monday and Tuesday.

ELECTRICAL ENGINEERING COURSE—JUNIOR YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Physics 3	Elect. Eng. 1	Machine Design 3	* Military Sci. 5	Physics 4
Tuesday.....		Machine Design 4	Machine Design 4	Machine Design 4	Physics 4
Wednesday....		Elect. Eng. 1	Machine Design 3	Mech. Eng. 7	Shopwork 9
Thursday.....	Machine Design 3	Machine Design 4	Machine Design 4	Machine Design 4	Machine Design 4
Friday.....		Mech. Eng. 7	Elect. Eng. 1	* Military Sci. 5	Mech. Eng. 9
Saturday	Mech. Eng. 7	Machine Design 3	Mech. Eng. 9	* Military Sci. 13 Physics 4	
SECOND SEMESTER					
Monday.....	* Elect. Eng. 6	Elect. Eng. 2	Machine Design 5	* Military Sci. 6	Elect. Eng. 4
Tuesday.....	Machine Design 5	Shopwork 10	Shopwork 10	Shopwork 10	Mech. Eng. 10
Wednesday.....	Machine Design 5	Elect. Eng. 2	Mech. Eng. 8	Physics 5	Physics 5
Thursday.....	Elect. Eng. 4	Elect. Eng. 4	Elect. Eng. 4	Mech. Eng. 8	Physics 5
Friday	Mech. Eng. 10	Mech. Eng. 8	Elect. Eng. 2	* Military Sci. 6	Physics 5
Saturday			Machine Design 5	* Military Sci. 14	

* Elective.

ELECTRICAL ENGINEERING COURSE—SENIOR YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Elect. Eng. 15		Mech. Eng. 11	* Military Sci. 7	Mech. Eng. 13
Tuesday.....	Mech. Eng. 12		Elect. Eng. 11	Elect. Eng. 13	Elect. Eng. 15
Wednesday.....	Mech. Eng. 13	Mech. Eng. 11	Elect. Eng. 11		
Thursday.....	Mech. Eng. 12	Elect. Eng. 11	Mech. Eng. 11	Elect. Eng. 13	Elect. Eng. 15
Friday.....			Mech. Eng. 11	* Military Sci. 7	
Saturday.....	* Elect. Eng. 23	Elect. Eng. 11		* Military Sci. 15	
SECOND SEMESTER					
Monday.....	Mech. Eng. 19	Elect. Eng. 12	Elect. Eng. 13	* Military Sci. 8	Elect. Eng. 18
Tuesday.....		Political Sci. 1	Elect. Eng. 25	Elect. Eng. 16	Elect. Eng. 16
Wednesday.....	Elect. Eng. 18	Elect. Eng. 13	Elect. Eng. 12	Mech. Eng. 19	Elect. Eng. 25
Thursday.....		Political Sci. 1		Elect. Eng. 25	Elect. Eng. 16
Friday.....		Elect. Eng. 12	Mech. Eng. 19	* Military Sci. 8	Elect. Eng. 18
Saturday.....	Elect. Eng. 12	Political Sci. 1		* Military Sci. 16	

* Elective.

MECHANICAL ENGINEERING COURSE—JUNIOR YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Physics 3	Elect. Eng. 1	Machine Design 3	* Military Sci. 5	Physics 4
Tuesday.....		Machine Design 4	Machine Design 4	Machine Design 4	Physics 4
Wednesday.....		Elect. Eng. 1 *	Machine Design 3	Mech. Eng. 7	Shopwork 9
Thursday.....	Machine Design 3	Machine Design 4	Machine Design 4	Machine Design 4	Machine Design 4
Friday.....		Mech. Eng. 7	Elect. Eng. 1	* Military Sci. 5	Mech. Eng. 9
Saturday.....	Mech. Eng. 7	Machine Design 3	Mech. Eng. 9	* Military Sci. 13 Physics 4	
SECOND SEMESTER					
Monday.....	Machine Design 6	Elect. Eng. 2	Machine Design 5	* Military Sci. 6	Machine Design 6
Tuesday.....	Machine Design 5	* Shopwork 10	* Shopwork 10	* Shopwork 10	Mech. Eng. 10
Wednesday.....	Machine Design 5	Elect. Eng. 2	Mech. Eng. 8	Physics 5	Physics 5
Thursday.....	Machine Design 6	Machine Design 6	Machine Design 6	Mech. Eng. 8	Physics 5
Friday.....	Mech. Eng. 10	Mech. Eng. 8	Elect. Eng. 2	* Military Sci. 6	Physics 5
Saturday.....	Elect. Eng. 17	Elect. Eng. 17	Machine Design 5	* Military Sci. 14	

* Elective.

MECHANICAL ENGINEERING COURSE—SENIOR YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Mech. Eng. 15	Elect. Eng. 19	Mech. Eng. 11	*Military Sci. 7	Mech. Eng. 13
Tuesday.....	Mech. Eng. 12	Mech. Eng. 15	Mech. Eng. 15	Mech. Eng. 15	Mech. Eng. 15
Wednesday	Mech. Eng. 13	Mech. Eng. 11		Elect. Eng. 19	
Thursday	Mech. Eng. 12	Mech. Eng. 15	Mech. Eng. 11		
Friday.....		Elect. Eng. 19	Mech. Eng. 11	*Military Sci. 7	Elect. Eng. 24
Saturday.....	Elect. Eng. 23	Mech. Eng. 15	Mech. Eng. 15	Mech. Eng. 15	
SECOND SEMESTER					
Monday.....	Mech. Eng. 19		Elect. Eng. 20	*Military Sci. 8	Thesis
Tuesday	Political Sci. 1	Mech. Eng. 17.	Mech. Eng. 14		Thesis
Wednesday	Elect. Eng. 20		Mech. Eng. 16	Mech. Eng. 19	Mech. Eng. 14
Thursday	Political Sci. 1	Thesis	Thesis	Thesis	Mech. Eng. 16
Friday	Mech. Eng. 16	Mech. Eng. 16	Mech. Eng. 19	*Military Sci. 8	Mech. Eng. 16
Saturday	Political Sci. 1	Mech. Eng. 17			

* Elective.

EXAMINATIONS—FIRST SEMESTER

SENIORS, JUNIORS, SOPHOMORES, FRESHMEN

	Monday, January 31	Tuesday, February 1	Wednesday, February 2	Thursday, February 3	Friday, February 4
8 to 10 A. M.	Chemistry 7 Forestry 3 Horticulture 1 Latin 1 Latin 3	Elect. Eng. 13 German 1 Physics 3 Zoölogy 8	Animal Husb. 1 Forestry 2 History 1 History 3 Mech. Eng. 12	Dairying 1 Elect. Eng. 1 History 5 History 11 Military Sci. 9	Elect. Eng. 19 French 5 Military Sci. 11 Physics 4
10 to 12 A. M.	Elect. Eng. 11 English 3 Horticulture 9 Political Sci. 3	German 3 German 5 Horticulture 8	Agronomy 3 Elect. Eng. 23 French 8 Military Sci. 15	Elect. Eng. 21 Philosophy 4	French 1 Geology 3 Military Sci. 13 Philosophy 1
1-30 P. M.	English 1 Mathematics 5 Mech. Eng. 9 Political Sci. 2	Botany 1 Botany 6 Botany 9 History 7 Machine Design 3 Mathematics 7 Mech. Eng. 11	Animal Husb. 7 Horticulture 4 Mathematics 2 Mech. Eng. 7 Meteorology 1 Philosophy 7 Zoölogy 4	Chemistry 1 Forestry 1 Machine Design 1 Mech. Eng. 15 Spanish 1	Agronomy 1 Chemistry 21 Machine Design 4 Mathematics 1 Mech. Eng. 13 Physics 1 Zoölogy 1 Zoölogy 10

Examinations in subjects not scheduled are arranged by instructors.

EXAMINATIONS—SECOND SEMESTER

SENIORS

	Saturday, June 4	Monday, June 6	Tuesday, June 7
8 to 10 A. M.	Elect. Eng. 20 Elect. Eng. 22 German 6 Horticulture 12 Horticulture 13	Agronomy 6 Agronomy 7 Chemistry 24 Mech. Eng. 16 Philosophy 6	English 6 French 6 Horticulture 6
10 to 12 A. M.	Chemistry 22 Mathematics 9 Mech. Eng. 14	Elect. Eng. 25 English 7 History 6	Horticulture 14 Philosophy 5 Political Sci. 1
1.30 P. M.		Botany 6 Botany 9 Chemistry 14 Elect. Eng. 12 Horticulture 10 Mech. Eng. 17 Philosophy 3	Animal Husb. 2 Chemistry 15 Mech. Eng. 19 Political Sci. 4. Political Sci. 5.

Examinations in subjects not scheduled are arranged by instructor. Senior examinations begin upon the last Saturday but one of the term.

EXAMINATIONS—SECOND SEMESTER
JUNIORS, SOPHOMORES, FRESHMEN

	Wednesday, June 8	Thursday, June 9	Friday, June 10	Saturday, June 11	Monday, June 13
8 to 10 A. M.	Elect. Eng. 6 German 2 Horticulture 5	Dairying 3 Horticulture 2 Latin 2 Latin 4 Mech. Eng. 1	Agronomy 2 History 2 History 4	Animal Husb. 6 Physics 5 Zoölogy 12	Animal Husb. 3 Philosophy 2
10 to 12 A. M.	Horticulture 3 Spanish 2	Botany 2 Mech. Eng. 10	Botany 5 Botany 10 Physics 6	French 2 English 4	Chemistry 6 Zoölogy 6 Zoölogy 7
1-30 P. M.	Horticulture 7 German 4 Machine Design 5 Military Sci. 10	Geology 1 Machine Design 6 Mathematics 4 Mathematics 6	Chemistry 2 French 4 Geology 2 Mech. Eng. 8 Military Sci. 12		Animal Husb. 4 Elect. Eng. 2 English 2 Mathematics 8 Physics 2

Examinations in subjects not scheduled are arranged by instructors. These examinations end upon the Monday before Commencement.

TWO YEAR COURSE IN AGRICULTURE.

This course was established by the state legislature in 1895, and provides an opportunity for those students to secure a training for their life work who do not have the time, money or preparation to take a four year college course.

The course is especially arranged and suited for the young, bright boys of the farm, who expect to make a business of some line of agricultural or horticultural work. Although it is open to students who have had no previous training on the farm, the entrance of such is not encouraged because of their lack of practical experience. By independent work and close application, however, inexperienced students sometimes pass the course with credit.

The course was recently shortened from thirty-five to thirty weeks, so as to enable the students to get home for the spring work on the farm or to accept wage positions for the summer. This short school year also permits of more than four months' time for those students who are dependent upon their own resources to earn money for the following year.

The work of the first year is largely preparatory, being a study of the sciences underlying agriculture, together with some elementary agricultural and horticultural work. The second year contains optional studies, so that it is possible for students to specialize in animal industry, dairying, forestry or greenhouse work. Ten hours a week on the average are spent in practical work on the farm, in the barn, greenhouses or shops.

ADMISSION.

The course is open to those who can pass a fair and reasonable examination in reading, spelling, writing, arithmetic, English grammar, geography and history of the United States. Applicants, unless over eighteen years of age, who do not bring high school or other satisfactory certificates to show their proficiency in these subjects, will be given an entrance examination on Tuesday afternoon and Wednesday morning of the opening week of school. Applicants who are over eighteen years of age will be admitted without examination.

OPENING.

The course for the year will open Wednesday, September 15, 1909, and close Wednesday, May 4, 1910. A Thanksgiving vacation of five days, a Christmas vacation of two weeks and a spring vacation of five days will be given.

EXPENSES.

The expenses of the course will vary with the tastes and frugality of the students and the kind of accommodations they secure. The total average expense for the year is not far from \$250. Many students by working for their board or room rent, or by doing various kinds of work about the college or village, are able to go through the year with a cash outlay not exceeding \$150.

CERTIFICATES.

No degree is given at the end of the course, but a certificate of graduation is issued upon the completion of it or its equivalent.

DESCRIPTION OF STUDIES.

AGRONOMY.

PROF. TAYLOR, MR. SLATE.

31. Elementary Agriculture.

Text-book and recitations upon the elementary principles of agriculture, including a study of the soil, the plant and the animal, and their relations to each other; the latter half of the semester will be devoted to a study of the breeds of cattle, with practical demonstrations in judging the different breeds. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

32. Farm Equipment and Farm Crops.

This course is similar to Agronomy 1, although less detailed. For Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

33. Soils and Soil Physics.

This course is similar to Agronomy 2, but involves less mathematics and physics. For Two Year Agricultural Students, Second Year.

Three exercises per week. 2d S.

34. Manures and Fertilizers.

Text-book and recitations upon the constituents of farm manures and chemical fertilizers, the care and application of manures, the home-mixing of fertilizers and the modifications required by different soils and crops. For Two Year Agricultural Students, Second Year.

Two exercises per week. 2d S.

ANIMAL HUSBANDRY.

ASSO. PROF. ARKELL, ASST. PROF. MCNUTT.

31. Types and Breeds of Live Stock.

Similar to Animal Husbandry 1. For Two Year Agricultural Students, Second Year. *Three exercises per week. 1st S.*

32. Sheep Raising.

Lectures and recitations upon the breeds of sheep; adaptability to this section; care and management; fitting for the shows and feeding for market purposes; the raising of hot house lambs. Also practical exercises in judging the various breeds. Elective for Two Year Agricultural Students, Second Year. *Three exercises per week. 1st S.*

33. Feeds and Feeding.

Similar to Animal Husbandry 3. For Two Year Agricultural Students, Second Year. *Three exercises per week. 2d S.*

34. Principles of Breeding.

Similar to Animal Husbandry 2. Elective for Two Year Agricultural Students, Second Year. *Three exercises per week. 2d S.*

35. Veterinary Science.

Similar to Animal Husbandry 4. Elective for Two Year Agricultural Students, Second Year. *Three exercises per week. 2d S.*

36. Poultry.

Similar to Animal Husbandry 5. Elective for Two Year Agricultural Students, Second Year. *Two exercises per week. 1st S.*

BOTANY.

MR. STEWART.

31. Elements of Botany.

A general view of the life processes and structure of plants, followed by the study in detail of a few type forms. Recitations and laboratory work. For Two Year Agricultural Students, First Year. *Three exercises per week. 1st S.*

32. Plant Diseases.

A study of the more important fungous diseases and their prevention. Lectures, recitations and laboratory work. For Two Year Agricultural Students, First Year.

Open only to students who have completed Course 1.

Three exercises per week. 2d S.

CHEMISTRY.**31. Elementary Applications.**

An elementary course, with special reference to the elements of plant food, composition of fertilizers, elements subject to exhaustion in soils, etc. For Two Year Agricultural Students, First Year. *Two exercises per week. 2d S.*

DAIRYING.

PROF. RASMUSSEN.

31. Milk and Milk Testing.

Lectures and recitations on the secretion, composition and properties of milk, the Babcock test and lactometer. Comparative study of different systems of creaming and different factors influencing the efficiency of the hand separator. For Two Year Agricultural Students, First Year.

Three exercises per week. 2d S.

32. Butter Making.

This includes pasteurization, commercial starters, cream ripening, churning, marketing and scoring butter. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

33. Technology of Milk.

Same as Course 3. Elective for Two Year Agricultural Students, Second Year.

Two exercises per week. 2d S.

DRAWING.**31. Two Year Agricultural Students, Second Year.**

One exercise per week. 1st S.

ENGLISH.

MR. DAVID.

31. Grammar and Elementary Composition.

For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

32. Grammar and Composition.

This is a continuation of English 31. For Two Year Agricultural Students, First Year.

Open only to students who have completed Course 31.

Three exercises per week. 2d S.

FORESTRY.

PROF. PICKETT.

31. Farm Forestry.

Method of reproduction, seed collecting, thinning, determination of heights, contents and increment of forest trees. For Two Year Agricultural Students, First Year.

Two exercises per week. 2d S.

HORTICULTURE.

PROF. PICKETT, MR. LUMSDEN, MR. BUNTING.

31. Vegetable Gardening. Mr. Bunting.

A study of the commercial methods of vegetable growing. Special attention is given to the home garden. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

32. Fruit Growing.

This course embraces a study of commercial orcharding; each fruit being studied with reference to planting, cultivating, pruning, fertilizing, picking, packing, storing and marketing. For Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

33. Greenhouse Management. Mr. Lumsden.

Combined lecture, demonstration and laboratory course in greenhouse management. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 1st S.

34. Home Decoration. Mr. Lumsden.

A study of ornamental trees, shrubs and flowers; their culture, proper arrangement and decorative value, with special reference to home surroundings. Elective for Two Year Agricultural Students, Second Year.

Three exercises per week. 2d S.

MATHEMATICS.

MR. SLATE.

31. Arithmetic and Bookkeeping.

A review of arithmetic, the first twelve weeks, and farm bookkeeping, the last six weeks. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

MILITARY SCIENCE AND TACTICS.

LIEUT. EDGERLY.

1. Military Drill.

For Two Year Agricultural Students, First Year.

*Two exercises per week. 1st S.***2. Military Drill.**

For Two Year Agricultural Students, First Year.

*Two exercises per week. 2d S.***3. Military Drill.**

For Two Year Agricultural Students, Second Year.

*Two exercises per week. 1st S.***4. Military Drill.**

For Two Year Agricultural Students, Second Year.

*Two exercises per week. 2d S.***9. Infantry Drill Regulations.**

Practical instruction and lectures. For Two Year Agricultural Students, First Year.

*One exercise per week. 1st S.***10. Manual of Guard Duty and Small Arms Firing Regulations.**

For Two Year Agricultural Students, First Year.

*One exercise per week. 2d S.***17. Lectures on Advance Guards, Outposts, etc.**

For Two Year Agricultural Students, Second Year.

*One exercise per week. 1st S.***18. Lectures on Advance Guards, Outposts, etc.**

Continuation of Military Science 17. For Two Year Agricultural Students, Second Year.

*One exercise per week. 2d S.***PHYSICS.**

PROF. NESBIT.

31. Elementary Physics.

For Two Year Agricultural Students, Second Year.

*Four exercises per week. 1st S.***SHOP WORK.****31. Wood Work.**

For Two Year Agricultural Students, First Year.

*Two exercises per week. 2d S.***32. Iron Work. Mr. Brown.**

For Two Year Agricultural Students, Second Year.

Two exercises per week. 2d S.

ZOOLOGY.**31. Vertebrate Anatomy and Physiology.**

The anatomy and physiology of the higher vertebrates based upon that of man and with special reference to domestic animals. Recitations and laboratory dissections and experiments. For Two Year Agricultural Students, First Year.

Three exercises per week. 1st S.

32. Elementary Entomology.

The structure, habits and classification of insects, with special consideration of injurious pests and means of controlling them. For Two Year Agricultural Students, First Year.

Three exercises per week. 2d S.

COURSES OF STUDY AND SCHEDULE OF HOURS.**First Year.**

	FIRST SEMESTER.	Credit hours.
<i>Agronomy 31</i>	Elementary Agriculture.....	3
<i>Botany 31</i>	Elements of Botany.....	3
<i>English 31</i>	Grammar and Elementary Composition	3
<i>Horticulture 31</i>	Vegetable Gardening.....	3
<i>Mathematics 31</i>	Mathematics and Bookkeeping...	3
<i>Military Science 1</i>	Drill	1
<i>Military Science 9</i>	Infantry Drill Regulations.....	1
<i>Zoölogy 31</i>	Vertebrate Anatomy and Physiology	3

SECOND SEMESTER.

<i>Botany 32</i>	Plant Diseases.....	3
<i>Chemistry 31</i>	Elementary Applications.....	2
<i>Dairying 31</i>	Milk and Milk Testing.....	3
<i>English 32</i>	Grammar and Composition.....	3
<i>Forestry 31</i>	Farm Forestry.....	2
<i>Military Science 2</i>	Drill	1
<i>Military Science 10</i>	Manual of Guard Duty.....	1
<i>Shop Work 31</i>	Wood Work.....	2
<i>Zoölogy 32</i>	Economic Entomology.....	3

Second Year.

FIRST SEMESTER.

<i>Agronomy</i> 32	Farm Equipment and Farm Crops	3
<i>An. Husb.</i> 31	Types and Breeds of Livestock...	3
* <i>An. Husb.</i> 32	Sheep Raising	3
* <i>An. Husb.</i> 36	Poultry	2
* <i>Dairying</i> 32	Butter Making.....	3
<i>Drawing</i> 31	.....	1
<i>Horticulture</i> 32	Fruit Growing.....	3
* <i>Horticulture</i> 33	Greenhouse Management.....	3
<i>Military Science</i> 3	Drill	1
<i>Military Science</i> 17	Advance Guards, Outposts, etc....	1
<i>Physics</i> 31	Elementary Physics.....	4

SECOND SEMESTER.

<i>Agronomy</i> 33	Soils and Soil Physics.....	3
<i>Agronomy</i> 34	Manures and Fertilizers.....	2
<i>An. Husb.</i> 33	Feeds and Feeding.....	3
* <i>An. Husb.</i> 34	Principles of Breeding.....	3
* <i>An. Husb.</i> 35	Veterinary Science.....	3
* <i>Dairying</i> 33	Technology of Milk.....	2
* <i>Forestry</i> 32	Aboriculture and Forestry.....	3
* <i>Horticulture</i> 34	Home Decoration.....	3
<i>Military Science</i> 4	Drill	1
<i>Military Science</i> 18	Advance Guards, Outposts, etc....	1
<i>Shop Work</i> 32	Iron Work.....	2

* Elective. Elect any two each semester.

TWO YEAR COURSE IN AGRICULTURE—FIRST YEAR

FIRST SEMESTER					SECOND SEMESTER				
DAY.	8-9	9-10	10-11	11-12	P. M.				
Monday.....	English 31	Agronomy 31	Mathematics 31	Military Sci. 1	Horticulture 31				
Tuesday.....		Military Sci. 9	Horticulture 31	Botany 31 (Div. 1 & 2)	Botany 31 (Div. 1) Zoölogy 31 (Div. 2)				
Wednesday.....	English 31	Agronomy 31	Mathematics 31	Zoölogy 31 (Div. 1 & 2)	Zoölogy 31 (Div. 1)				
Thursday.....		Horticulture 31		Zoölogy 31 (Div. 1 & 2)	Botany 31 (Div. 1)				
Friday.....	English 31	Agronomy 31	Mathematics 31	Military Sci. 1	Botany 31 (Div. 2)				
Saturday			Botany 31 (Div. 2)	Botany 31 (Div. 2)					
Monday.....	English 32	Chemistry 31	Forestry 31	Military Sci. 2	Botany 32 (Div. 2) Shop 31 (Div. 1)				
Tuesday.....		Botany 32 (Div. 1) Shop 31 (Div. 2)	Botany 32 (Div. 1) Shop 31 (Div. 2)	Shop 31 (Div. 2)	Dairying 31 (Div. 1) Zoölogy 32 (Div. 2)				
Wednesday.....	English 32	Chemistry 31	Botany 32 (Div. 1) Shop 31 (Div. 2)	Botany 32 (Div. 1) Shop 31 (Div. 2)	Forestry 31				
Thursday.....	Dairying 31 (Div. 1) Zoölogy 32 (Div. 2)	Dairying 31 (Div. 1) Zoölogy 32 (Div. 2)	Dairying 31 (Div. 1) Zoölogy 32 (Div. 2)	Botany 32 (Div. 1 & 2)	Dairying 31 (Div. 2) Zoölogy 32 (Div. 1)				
Friday.....	English 32	Military Sci. 10.	Dairying 31 (Div. 1 & 2)	Military Sci. 2	Botany 32 (Div. 2) Shop 31 (Div. 1)				
Saturday	Dairying 31 (Div. 2) Zoölogy 32 (Div. 1)	Dairying 31 (Div. 2) Zoölogy 32 (Div. 1)	Dairying 31 (Div. 2) Zoölogy 32 (Div. 1)	Zoölogy 32 (Div. 1 & 2)					

TWO YEAR COURSE IN AGRICULTURE—SECOND YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday	*An. Husb. 32 *Horticulture 33	Horticulture 32	*Dairying 32	Military Sci. 3	An. Husb. 31
Tuesday	*Dairying 32 *An. Husb. 32 *Horticulture 33	*Dairying 32 Horticulture 32	Agronomy 32 Physics 31	Physics 31 An. Husb. 31	An. Husb. 36 *Horticulture 33 Agronomy 32
Wednesday	*An. Husb. 32	*An. Husb. 32	Agronomy 32	Physics 31	*Dairying 32
Thursday	Military Sci. 17	*An. Husb. 36	An. Husb. 31	Military Sci. 3	Horticulture 32
Friday	Drawing 31	Drawing 31	Drawing 31	Physics 31	
Saturday					
SECOND SEMESTER					
Monday	Agronomy 34	*Dairying 33	*Forestry 32	Military Sci. 4	*An. Husb. 35
Tuesday	Military Sci. 18	*An. Husb. 35	Agronomy 33	*Horticulture 34	*Dairying 33 *Forestry 32
Wednesday	Agronomy 34	Shop 32 *An. Husb. 34 *Horticulture 34	Shop 32	Shop 32	Agronomy 33
Thursday	*Horticulture 34	*An. Husb. 35 *Forestry 32	Agronomy 33		An. Husb. 33
Friday	An. Husb. 33			Military Sci. 4	*Horticulture 34 *An. Husb. 34
Saturday	An. Husb. 33	*An. Husb. 34	Shop 32	Shop 32	

* Elective.

TEN WEEK COURSE IN DAIRYING OR DAIRY SCHOOL.

OPENING.

The Fifteenth Annual Dairy School of the New Hampshire College opens Tuesday, January 4, and closes Friday, March 11, 1910. Students should present themselves for registration at Thompson Hall the first day of the session. Lectures and laboratory work will begin the following day.

ADMISSION.

The school is open to men and women sixteen years of age and upward. No entrance examination is required. However, in order to make the best use of the instruction, the student should have a good common school education. The experiences of previous years have shown that the subject in which the student is most deficient is arithmetic, especially percentage and decimals. Both of these divisions of arithmetic are used to a large extent in solving problems in the creamery and also in computing rations for the dairy cow. It is, therefore, well for those planning to take the dairy course to review these subjects before entering. To be most benefited by the school, the students should have had some practical experience on a farm or in a creamery.

EXPENSES.

A tuition of five dollars is payable on registering, at the beginning of the term; other expenses, including books, white suits, and room and board for ten weeks, amount to approximately sixty dollars.

CERTIFICATES.

Students completing the required work of the dairy school and passing satisfactory examinations, will be given certificates.

AGRONOMY.

PROF. F. W. TAYLOR.

50. Forage and Silage Crops.

This course will consist of ten lectures upon forage and silage crops which are suited to New Hampshire conditions. The matter of varieties, preparation of the ground, time of seeding, amount of seed, harvesting and storing will be discussed. Soiling crops, the construction of silos and the growing of crops for the silo will be treated in as much detail as the

time allows. A laboratory period in corn judging and one in seed testing will be given.

51. Manures and Fertilizers.

This course will consist of eight lectures upon the constituents of farm manures and chemical fertilizers; the care and application of manure; the home mixing of fertilizers and the modifications for different soils and crops.

ANIMAL HUSBANDRY.

ASSO. PROF. T. B. ARKELL, ASST. PROF. J. C. MCNUTT.

42. Breeds of Dairy Cattle.

Lectures and recitations upon the origin, history, distribution, characteristics, adaptability and standard of excellence of the pedigreed breeds of cattle, with special reference to the selection of breeds and of individual animals for the herd. The practical work will consist of scoring and judging representatives of the various breeds of dairy cattle, and in tracing pedigrees of animals in the herd books of the different breeds. Two lectures and one judging period per week.

44. Diseases of Cattle.

This course will consist of lectures and recitations upon the anatomy and physiology of the cow, with special reference to the digestive, reproductive and milk-producing organs. The common diseases, their causes and the methods of treatment will be discussed.

45. Feeds and Feeding.

Lectures and recitations upon the composition and digestibility of feeding stuffs. A daily study of the different grains and feeds, and their value in a dairy ration. Practice will be given in computing rations for the dairy cow.

Three exercises per week.

DAIRYING.

PROF. FRED RASMUSSEN, J. H. PIERPONT, BUTTER MAKER.

40. Butter Making.

Lectures and recitations on the different systems of creaming milk and a comparison of the efficiency of different cream separators under varying conditions; cream ripening; churning, washing, marketing and scoring of butter.

41. Dairy Bacteriology.

Lectures and demonstrations on the function of bacteria and the application of bacteriological principles to dairy work, such

as pasteurization, cream ripening, commercial starters, and deterioration of butter.

42. Dairy Laboratory.

The equipment in the dairy building is such that the laboratory work can be made applicable both to farm and factory conditions. The student will have an opportunity to study construction and efficiency, and operation of the various machines used in the handling of milk and making of butter. The use of the Babcock test in apportioning the money value of milk is now regulated by state law, and the importance of the test in the successful management of the dairy herd has created a demand for more complete and practical training. The details of the test will be studied carefully, and the student will practise testing milk, cream, skim-milk and butter-milk until fully competent to perform the work for himself or for others.

43. Market Milk.

A study of the value of milk as a food and its relation to public health. The production and handling of market milk, and of certified milk. Commercial milk inspection. Exercise will be given in the scoring of milk and cream, and in the scoring of dairies.

44. Milk Testing.

This course will consist of a study of the composition, the physical and chemical properties of milk, the various methods of sampling and testing milk and cream, the testing of dairy herds and organizing and operating cow test associations.

NEW HAMPSHIRE AGRICULTURAL EXPERIMENT STATION

Most of the Agricultural Experiment Stations of the various states, including that of New Hampshire, were founded in 1888 by an act of Congress, approved March 2, 1887, known as the Hatch Act, in honor of its author. This act appropriated fifteen thousand dollars (\$15,000) annually for the maintenance of an Agricultural Experiment Station in each state. This act provides:

"That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the

chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural and artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories." The act also provides that the results of such work shall be published in bulletins and reports.

A further endowment of the Experiment Stations to provide specifically for research work was made by the Adams Act, passed by Congress and approved March 16, 1906, which provided an increased annual appropriation which amounts to \$13,000 for the current fiscal year, and increases to \$15,000 in 1911-'12. This appropriation is specifically limited to the "necessary expenses of conducting original researches or experiments," and the rulings of the United States Department of Agriculture, which is vested with the supervision of the expenditures under this act, require that this appropriation be spent in fundamental investigations or researches to determine the underlying causes and principles of agricultural science, rather than for mere experiments to secure results of immediate practical application as contemplated under the Hatch Act appropriation. The purposes of the two acts are therefore supplementary but distinct.

The New Hampshire Agricultural Experiment Station is organized as a department of the New Hampshire College of Agriculture and Mechanic Arts, and is administered by a Board of Control, elected by its Board of Trustees.

The publications of the Station comprise 142 bulletins of the regular series and seven circulars. The bulletins are issued at irregular intervals and are sent to all residents of New Hampshire requesting them. Back numbers will be sent as long as the supply lasts.

The Station is prepared to give advice and assistance to the farmers of New Hampshire along the following lines:

The maintenance of soil fertility, including the rotation of

crops and the selection and use of manures and fertilizing materials.

The selection of varieties of grains, grasses and forage crops and methods of culture.

The selection of varieties of fruits and vegetables and the management of orchards.

The examination of seeds that are suspected of being unsound or adulterated; the identification of grasses, weeds and other plants; the prevention of fungous diseases of plants.

The identification of insects and the control of such as are injurious.

The feeding of animals, including calculation of rations and use of various feeding stuffs.

The methods of milk production, creamery and dairy methods and machinery and the scoring of dairy products.

The testing of milk to determine the value of dairy cows.

The planting and care of forest trees and the management of farm wood lots.

Any citizen of New Hampshire has the right to apply to the Station for such assistance as it can give, and all such requests will be given prompt attention.

COMMENCEMENT, 1909.

On Commencement Day, June 16, 1909, the following degrees were conferred:

BACHELORS OF SCIENCE.

Agriculture.

Falconer, John Ironside, Milford.

Parker, John Edward, Goffstown.

Townsend, Harry Storrs, Lebanon.

Arts and Science.

Brown, Edna Olive, Rye Beach.

Drew, Lucy Abby, Colebrook.

Stokes, Iva Dorothy, Epsom.

Wentworth, Stephen Neal, Rochester.

Chemical.

Ackerman, Laurence Day, Bristol.

Kennedy, Carl Duncan, Concord.

Langelier, Wilfred F., Nashua.

Pratt, Lester Albert, Alton Bay.

Sargent, George Jackman, Concord.

Trickey, John Paul, Rochester.

Electrical Engineering.

Campbell, William Smith, Hudson.
 Ellsworth, Perry Foss, Meredith.
 Goodwin, Otis Dana, Hollis.
 Lougee, Bernard Ayers, Pittsfield.
 McKone, Frank E., Dover.
 Merrill, Maurice David, Andover.
 Wendell, Chester Snell, Dover.

Mechanical Engineering.

Batchelder, Henry Edward, Exeter.
 Kelley, Charles William, Barnstead.
 Peaslee, Albert, Gonic.
 Pike, Herbert Samuel, Lisbon.
 Quimby, Harold Wallace, Northwood Narrows.
 Richardson, Charles Sidney, Cornish Center.
 Smalley, Lee Lawrence, Walpole.
 Stevens, Ernest Morton, Andover.
 Wilder, Howard Erwin, Amesbury, Mass.
 Wilkins, Harold Hartshorn, Amherst.
 Woods, Arthur Page, Bath.

Unclassified.

Wood, Chester Loring, Dudley, Mass.

Certificates.

Colburn, Luther Dodge, New Boston.
 Hill, Claudian Frost, Wakefield, Mass.
 Martin, Leslie Chapin, Chicopee, Mass.
 Waite, Iru Merrill, Goffstown.

PRIZE RECORD FOR 1909.**BAILEY PRIZE—\$10.**

GIVEN BY DR. C. H. BAILEY OF THE CLASS OF '79, AND E. A. BAILEY
 OF THE CLASS OF '85.

GEORGE JACKMAN SARGENT, Concord.

ERSKINE MASON MEMORIAL PRIZE.

JOHN EDWARD PARKER, Goffstown.

CHASE-DAVIS MEMORIAL MEDALS.**Gold Medal.**

CARL DUNCAN KENNEDY, Concord.

Silver Medal.

LESTER ALBERT PRATT, Alton Bay.

**SENIOR STANDING HIGHEST IN THE MILITARY
DEPARTMENT.**

CARL DUNCAN KENNEDY, Concord.

WINNERS OF INDIVIDUAL PRIZE DRILL.

Gold Medal.

JOHN HUTCHINS BACHELDER, '12, Concord.

Silver Medal.

STEPHEN DEMERITT, '12, Durham.

HONORABLE MENTION.

ALAN LEIGHTON, '12, Concord.

PRIZE SWORD—EXCELLENCE IN DRILL.

HARRY PEACH CORSON, '10, Laconia.

Honorable Mention.

CLEMENT LINWOOD PERKINS, '10, Berwick, Me.

**SENIORS REPORTED TO ADJUTANT-GENERAL, U. S. ARMY,
FOR APTITUDE IN DRILL.**

CARL DUNCAN KENNEDY, Concord.

HAROLD HARTSHORN WILKINS, Amherst.

JOHN PAUL TRICKEY, Rochester.

COLOR COMPANY—FIRST SEMESTER.

COMPANY A.

VALENTINE SMITH SCHOLARSHIPS.

EDWARD D. FRENCH, '10.

MARGARET DEMERITT, '11.

PHILIP L. GOWEN, '12.

LESTER A. WHITAKER, '13.

ROSTER OF BATTALION.

FOR 1909—'10.

COMMANDANT.

LIEUTENANT G. W. EDGERLY, Second United States Infantry.

CADET OFFICERS AND NON-COMMISSIONED OFFICERS.

Field and Staff.

MAJOR H. P. CORSON.

FIRST LIEUT. AND ADJT. L. S. MORRISON.

SECOND LIEUT. AND Q. M. A. H. BROWN.

SERGT. MAJOR L. E. PIERCE.

Q. M. SERGT. C. H. ROBINSON.

Band.

FIRST LIEUT. T. A. THORP.

DRUM MAJOR F. M. HOBEN.

Sergeants.

H. W. SANBORN.

B. E. G. SILVER.

I. C. PERKINS.

J. B. PETTENGILL.

Corporals.

W. J. AVERY.

C. B. ADAMS.

A. M. BENNETT.

COMPANY A.

CAPT. F. O. CHASE.

FIRST LIEUT. C. E. LAWRENCE.

SECOND LIEUT. C. F. WHITTEMORE.

FIRST SERGT. B. F. PROUD.

Sergeants.

A. G. DAVIS.

R. C. MORGAN.

ALAN LEIGHTON.

E. H. CHASE.

Corporals.

W. E. ROGERS.

M. P. BRADFORD.

E. C. WILLIAMS.

J. A. MANTER.

M. S. WATSON.

J. A. GARLAND.

Musicians.

G. A. MCPHETERS.

C. N. STETSON.

COMPANY B.

CAPT. R. A. NEAL.

FIRST LIEUT. E. E. STARK.

SECOND LIEUT. P. J. BURBECK.

FIRST SERGT. R. E. CARPENTER.

Sergeants.

H. R. TUCKER.

S. DEMERITT.

J. H. BACHELDER.

K. E. MERRILL.

Corporals.

L. S. FOSTER.

P. D. BUCKMINSTER.

C. M. J. BICKFORD.

F. S. DAVISON.

P. L. GOWEN.

F. F. HARGRAVES.

Musicians.

P. L. JONES.

J. D. TWOMEY.

STUDENTS.

a—Agricultural Course; *c*—Course in Technical Chemistry; *g*—General Course; *m e*—Mechanical Engineering; *e e*—Electrical Engineering; *u*—Unclassified. Freshmen in the Engineering Courses and Sophomores in the Electrical and Mechanical Engineering Courses are designated by *e* only.

SENIORS.

Name.	Residence.
Anderson, David Wadsworth <i>a</i>	<i>Manchester.</i>
Bills, Frank Hartwell <i>e e</i>	<i>Reed's Ferry.</i>
Blake, Alfred Edward <i>c</i>	<i>Nashua.</i>
Boynton, Dalton <i>e e</i>	<i>Little Boar's Head.</i>
Bryant, Orville Frank <i>c</i>	<i>Ashland.</i>
Burns, Lucian Holmes <i>a</i>	<i>Milford.</i>
Burroughs, Edgar Herbert <i>m e</i>	<i>Sanbornville.</i>
Burroughs, Wilbur Warren <i>m e</i>	<i>Sanbornville.</i>
Chase, Fred Odell <i>m e</i>	<i>Warner.</i>
Converse, Henry Thomas <i>a</i>	<i>Amherst.</i>
Corliss, Harry Percival <i>c</i>	<i>Wolfeboro.</i>
Corson, Harry Peach <i>c</i>	<i>Laconia.</i>
Cotton, Arthur Clyde <i>a and s</i>	<i>Alton.</i>
French, Edward Daniel <i>e e</i>	<i>South Hampton.</i>
Hefler, George Burpee <i>m e</i>	<i>Jackson.</i>
Hoyt, Simes Thurston <i>m e</i>	<i>Newington.</i>
Kidder, Walter Dennis <i>e e</i>	<i>Manchester.</i>
Lawrence, Cheney Eben <i>m e</i>	<i>Nashua.</i>
Morrison, Leonard Samuel <i>a and s</i>	<i>Penacook.</i>
Neal, Haldimand Wentworth <i>e e</i>	<i>Dover.</i>
Neal, Robert Abbott <i>e e</i>	<i>Dover.</i>
Peel, Charles Edward <i>c</i>	<i>Nashua.</i>
Perkins, Clement Linwood <i>c</i>	<i>Berwick, Me.</i>
Read, Harold Clifford <i>e e</i>	<i>Westport.</i>
Sanborn, Edson Dana <i>a</i>	<i>Fremont.</i>
Scammon, Raymond Brewster <i>m e</i>	<i>Stratham.</i>
Swan, Clyde Henry <i>a and s</i>	<i>Keene.</i>
Thorp, Theron Alberto <i>e e</i>	<i>Exeter.</i>
Wells, Burleigh Ray <i>e e</i>	<i>Somersworth.</i>
Wright, Charles Shannon <i>a</i>	<i>Portsmouth.</i>

JUNIORS.

Arozian, Ohannes A. <i>c</i>	<i>Nashua.</i>
Bennett, Leland Wilson <i>e e</i>	<i>Laconia.</i>
Brown, Albert Huckins <i>a</i>	<i>Strafford.</i>
Brown, Charles Owen <i>c</i>	<i>Concord.</i>
Burbeck, Perry James <i>e e</i>	<i>Haverhill.</i>
Carpenter, Roy Elbert <i>e e</i>	<i>Medford, Mass.</i>
Colby, Arthur Samuel <i>a</i>	<i>Tilton.</i>
DeMeritt, Margaret <i>a and s</i>	<i>Durham.</i>
Drew, Mariette Alice <i>a and s</i>	<i>Colebrook.</i>
Gove, Willis Ansel <i>m e</i>	<i>Laconia.</i>
Hardy, Harold Elwin <i>a</i>	<i>Hollis.</i>
Hatch, Olive Estelle <i>a and s</i>	<i>Dover.</i>

Name.	Residence.
Judkins, Henry Forrest <i>a</i>	<i>Kingston.</i>
Kemp, Charles Willis <i>a</i>	<i>Kingston.</i>
Little, Webb <i>a</i> and <i>s</i>	<i>Campton.</i>
Morrill, Winfred <i>e e</i>	<i>Pike.</i>
Nason, Carl Eastman <i>e e</i>	<i>Concord.</i>
Parker, Edward Gookin <i>c</i>	<i>Portsmouth.</i>
Parker, William Folger <i>a</i> and <i>s</i>	<i>Goffstown.</i>
Pease, Bret <i>e e</i>	<i>Ashland.</i>
Philbrook, Henry Brown <i>a</i> and <i>s</i>	<i>North Hampton.</i>
Pierce, Leonard Emerson <i>e e</i>	<i>Worcester, Mass.</i>
Proud, Benjamin Franklin <i>a</i> and <i>s</i>	<i>Manchester.</i>
Proud, Brenton W. <i>e e</i>	<i>Manchester.</i>
Scott, Bessie Amanda <i>a</i> and <i>s</i>	<i>Tyson, Vt.</i>
Stark, Eldon Eugene <i>e e</i>	<i>Haverhill.</i>
Towne, Ernest George <i>m e</i>	<i>Thornton.</i>
Whittemore, Charles Farnum <i>c</i>	<i>Pembroke.</i>
Wilkins, Aaron Wallace <i>m e</i>	<i>Amherst.</i>

SOPHOMORES.

Abbott, Walter S. <i>a</i> and <i>s</i>	<i>Manchester.</i>
Bachelor, John Hutchins <i>a</i>	<i>Concord.</i>
Bailey, Thomas Craig <i>e</i>	<i>New Boston.</i>
Berry, George Wesley <i>a</i>	<i>Stratham.</i>
Bradford, Maurice P. <i>e</i>	<i>Derry.</i>
Buckminster, Paul D. <i>c</i>	<i>Lee.</i>
Bunker, Lewis L. H. <i>e</i>	<i>Durham.</i>
Chamberlain, Walter E. <i>a</i>	<i>Lisbon.</i>
Chase, Earl H. <i>e</i>	<i>Newport.</i>
Cole, Florence Viola <i>a</i> and <i>s</i>	<i>Dover.</i>
Crosby, Percy Raymond <i>e</i>	<i>Durham.</i>
Davis, Arthur G. <i>a</i>	<i>Peterborough.</i>
Davison, Frank S. <i>a</i>	<i>Durham.</i>
DeMerritt, Stephen <i>e</i>	<i>Durham.</i>
Donnelly, Edith G. <i>a</i> and <i>s</i>	<i>Dover.</i>
Drew, Lyle Stevens <i>c</i>	<i>Union.</i>
Duncan, Raymond C. <i>e</i>	<i>Alton.</i>
Easterbrook, Ralph Lewis <i>a</i>	<i>Dudley, Mass.</i>
Foster, Leland S. <i>e</i>	<i>Newport.</i>
Gowen, Philip Lewis <i>c</i>	<i>Stratham.</i>
Hargraves, Fred Forest <i>e</i>	<i>Nashua.</i>
Hayes, Bernice M. <i>a</i> and <i>s</i>	<i>Durham.</i>
Hoben, Frank M. <i>c</i>	<i>Concord.</i>
Holden, Hiram Chester <i>c</i>	<i>Manchester.</i>
Knight, Ray Herbert <i>a</i>	<i>Marlborough.</i>
Leighton, Alan <i>c</i>	<i>Concord.</i>
Leighton, Arthur John <i>e</i>	<i>Laconia.</i>
Lowd, Clarence Mortimer <i>e</i>	<i>Durham.</i>
McPheters, George A. <i>e</i>	<i>Portsmouth.</i>
Manter, Jerauld A. <i>a</i> and <i>s</i>	<i>Manchester.</i>
Merrill, Karl E. <i>e</i>	<i>Hudson.</i>
Morgan, Ralph Clifford <i>e</i>	<i>Concord.</i>
O'Malley, Michael J. <i>e</i>	<i>Somersworth.</i>
Page, William E. <i>e</i>	<i>Haverhill.</i>
Parker, Harry Stinson <i>e</i>	<i>Goffstown.</i>

Name.	Residence.
Perkins, Irving C. <i>e</i>	Kennebunk, Me.
Pettengill, James B. <i>e</i>	Dover.
Phillips, Paul Milton <i>a</i>	Nashua.
Quimby, Waldo Hutchinson <i>e</i>	Concord.
Reynolds, Clearton Howard <i>c</i>	Middletown, N. Y.
Roberts, George Filmore <i>a</i>	Alton.
Robinson, Charles Harrison <i>c</i>	Marlborough.
Robinson, John E. <i>c</i>	Pembroke.
Rogers, William Edward <i>e</i>	Durham.
Sawyer, Arthur H. <i>a</i>	Atkinson.
Scott, Charles Field <i>a</i> and <i>s</i>	Durham.
Shapleigh, Edward Eugene <i>e</i>	Kittery, Me.
Skinner, Russell E. <i>a</i>	Colebrook.
Smart, Guy <i>a</i> and <i>s</i>	Rochester.
Towle, George Wesley <i>a</i> and <i>s</i>	Newmarket.
Tucker, Herbert Ray <i>a</i> and <i>s</i>	Concord.
Tucker, Raymond Hodgdon <i>c</i>	Berlin.
Tuttle, Harry Benjamin <i>a</i>	Atkinson.
Waldron, Jeremy Richard <i>e</i>	Farmington.
Warner, William Pearl <i>a</i>	Plaistow.
Watson, Miles Standish <i>a</i>	Durham.
Wood, Arthur G. <i>e</i>	Atkinson.
Wyman, Horace Chester <i>a</i>	Manchester.

SPECIAL COURSE.

Avery, Walter J.	Laconia.
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FRESHMEN.

Adams, Carroll Sidney <i>e</i>	Marlborough.
Andrew, David Henry <i>e</i>	Newbury.
Batchelder, C. Howard <i>a</i> and <i>s</i>	Taunton, Mass.
Beach, Robin <i>e</i>	South Natick, Mass.
Bissell, Don Warren <i>e</i>	Keene.
Buxton, Ray Pressey <i>e</i>	South Hampton.
Call, William T. <i>e</i>	Portsmouth.
Chase, William Hosea <i>e</i>	Newport.
Christie, Jesse Roy <i>a</i>	New Boston.
Coburn, Richard Vance <i>e</i>	Manchester.
Cole, Edward Everett <i>e</i>	Warner.
Davis, Maurice E. <i>e</i>	Haverhill, Mass.
Davis, Wesley Elton <i>e</i>	Durham.
Eastman, Wesley <i>a</i>	Andover.
Evans, Ivan Marshall <i>e</i>	Laconia.
Falconer, William Marshall <i>a</i>	Milford.
Foster, Perley Addison <i>a</i>	Claremont.
Gale, Philroy Clifton <i>e</i>	Concord.
Garland, Irving Robinson <i>a</i>	Lakeport.
Garland, John A. <i>a</i>	Hampstead.
Garland, Russell White <i>e</i>	Manchester.
Gillespie, Marion Emma <i>a</i> and <i>s</i>	Manchester.
Goodale, Leonard Anthony <i>e</i>	Amherst.
Hardy, Orion Henry <i>e</i>	Penacook.

Name.	Residence.
Hayden, Harry Eugene <i>a and s</i>	<i>The Weirs.</i>
Hilliard, Leon Wilcomb <i>s</i>	<i>Kingston.</i>
Hodgdon, Winifred <i>a and s</i>	<i>Newington.</i>
Jenness, Augustine Watson <i>e</i>	<i>Dover.</i>
Jenness, Chester Albert <i>a</i>	<i>Dover.</i>
Jones, Philip Cowell <i>e</i>	<i>Milton.</i>
Kelley, Charles George <i>e</i>	<i>Gilmanston.</i>
Kelley, Leon Jerry <i>e</i>	<i>Colebrook.</i>
Keyes, Donald Babcock <i>e</i>	<i>Dover.</i>
Knight, Charles Brigham <i>e</i>	<i>Marlborough.</i>
Krook, William Cleon <i>e</i>	<i>Wolfeboro.</i>
Ladd, John Everett <i>e</i>	<i>Raymond.</i>
Lane, Gilbert Frederic <i>e</i>	<i>Ashburnham, Mass.</i>
Lang, Gilman Anjavine <i>e</i>	<i>Newmarket.</i>
Leach, Herbert Chase <i>a</i>	<i>Litchfield.</i>
Leavitt, Van Earle <i>a</i>	<i>Laconia.</i>
Locke, Harriet Esther <i>a and s</i>	<i>Hampton.</i>
Lord, Mabel Estella <i>a and s</i>	<i>Hopkinton.</i>
Lovell, Roscoe Ernest <i>a and s</i>	<i>Portsmouth.</i>
McKone, Mary Helen <i>a and s</i>	<i>Dover.</i>
Metze, Wilhelm Hamilton <i>e</i>	<i>Berlin.</i>
Morgan, John Christie <i>e</i>	<i>Lawrence, Mass.</i>
Morrison, Arthur Everett <i>e</i>	<i>Durham.</i>
Neal, Cecil Maurice <i>e</i>	<i>Portsmouth.</i>
O'Connor, Regina <i>a and s</i>	<i>Newmarket.</i>
Paine, Nathan Dean <i>e</i>	<i>Berlin.</i>
Peavey, Harold Forrest <i>e</i>	<i>Wolfeboro.</i>
Pinkham, Valentine <i>e</i>	<i>Dover.</i>
Place, Walter Roy <i>e</i>	<i>Alton Bay.</i>
Potter, Arthur Langdon <i>a</i>	<i>Conway.</i>
Purinton, Helen Fraser <i>a and s</i>	<i>Dover.</i>
Richmond, Alfred Leroy <i>e</i>	<i>Nashua.</i>
Robinson, Harold Averill <i>e</i>	<i>Elmwood.</i>
Rogers, Charles Harold <i>e</i>	<i>Exeter.</i>
Sanborn, Ralph Moses <i>a</i>	<i>Lakeport.</i>
Sanborn, Smith <i>e</i>	<i>Franklin.</i>
Smith, Arnold Drake <i>e</i>	<i>North Hampton.</i>
Stearns, Clifford Dwight <i>a</i>	<i>Hinsdale.</i>
Stewart, William Finley <i>a and s</i>	<i>Brockton, Mass.</i>
Tarbell, Luther Allen <i>e</i>	<i>Hollis.</i>
Tubman, Perry Elliott <i>e</i>	<i>Portsmouth.</i>
Twomey, John <i>e</i>	<i>Penacook.</i>
Twomey, Thomas James <i>e</i>	<i>Concord.</i>
Watson, Lyle N. <i>a</i>	<i>Barnstead.</i>
Whitaker, Lester Ray <i>a</i>	<i>Berwick, Me.</i>
Whiting, Paul Nathaniel <i>a</i>	<i>Amherst.</i>
Whittemore, Hollie Lander <i>a</i>	<i>Colebrook.</i>
Willard, Daniel Phineas Alston <i>e</i>	<i>West Upton, Mass.</i>
Woodward, Bernard <i>e</i>	<i>Lancaster.</i>
Work, Clayton Wight <i>e</i>	<i>Exeter.</i>
Yates, James Black <i>a</i>	<i>Biddeford, Me.</i>

TWO-YEAR COURSE.

Second Year.

Name.	Residence.
Benner, Andrew Winfred	<i>Gonic.</i>
Bickford, Channing Montford J.	<i>Rye Beach.</i>
Osgood, Wilfred Albro	<i>Windham Depot.</i>
Sanborn, Howard Weaver	<i>Sanbornton.</i>
Silver, Bertram Eugene Graham	<i>Roxbury, Mass.</i>
Snow, Percy Septimus	<i>Nashua.</i>
Stevens, Henry Lee	<i>Franklin.</i>
Townsend, Hugh	<i>Lebanon.</i>
Williams, Everett Cook	<i>Worcester, Mass.</i>
Wiswell, Everett	<i>Colebrook.</i>
Woods, Minot Walter	<i>Bath.</i>

First Year.

Baptiste, Alfred	<i>Durham.</i>
Beloff, Edward H.	<i>Amesbury, Mass.</i>
Bennett, Arthur M.	<i>Nashua.</i>
Bent, Horace V.	<i>Annapolis, N. S.</i>
Bodwell, Joseph Connor	<i>Sanbornton.</i>
Brown, Ernest Dwight	<i>Keene.</i>
Chadbourn, Aaron Willey	<i>Durham.</i>
Dole, Rockwell Merrill	<i>Proctorsville, Vt.</i>
Drake, Howard A.	<i>Salem.</i>
Eaves, Louis Clifton	<i>Dublin.</i>
Ellsworth, Laurence E.	<i>Peterborough.</i>
Fletcher, Burleigh Wyllis	<i>South Lyndeborough.</i>
Frizzell, Edward Reuben	<i>Durham.</i>
Frohock, Earl S.	<i>Alton.</i>
Griswold, Atherton	<i>Hancock.</i>
Hartshorn, Frank W.	<i>Meredith.</i>
Hazen, Allen E.	<i>Bethlehem.</i>
Henry, Norman Sargeant	<i>Hopedale, Mass.</i>
Hopwood, William R.	<i>Litchfield.</i>
Kilburn, Homer E.	<i>East Andover.</i>
Littlehale, Walter Eugene	<i>Durham.</i>
Mercer, Forrest Clinton	<i>Peterborough.</i>
Nevins, William S.	<i>Derry.</i>
Nye, Frederick I.	<i>Durham.</i>
Robinson, Don Hurlin	<i>Antrim.</i>
Robinson, Howard R.	<i>Littleton.</i>
Samayoa, Julius	<i>Guatemala, C. A.</i>
Sargent, Raymond A.	<i>Newton.</i>
Sherburne, Ernest G.	<i>Pelham.</i>
Smith, Howard E.	<i>Candia.</i>
Stetson, Charles N.	<i>Durham.</i>
Stevens, Leon V.	<i>Canaan.</i>
Swinerton, Percy R.	<i>Kingston.</i>
Wadleigh, Lewis J.	<i>Tilton.</i>
Whitcomb, Ernest B.	<i>Lempster.</i>
Wiggin, Ralph Minot.	<i>Bedford.</i>

TEN-WEEK COURSE.

Name.	Residence.
Chadbourn, Aaron Willey	<i>West Somerville, Mass.</i>
Gilman, Daniel	<i>Exeter.</i>
Hall, Roy Eugene	<i>Harrisville.</i>
Hamm, Lloyd Winston	<i>Leighton's Corner.</i>
Kennedy, John Robert	<i>Lowell, Mass.</i>
Thompson, Frank Daniel	<i>Bennington, Vt.</i>
Waite, Edwin	<i>Goffstown.</i>
Walker, Kenneth	<i>Alton.</i>

ONE-WEEK COURSE.

Atherton, C. A.	<i>Newmarket.</i>
Atwood, D. T.	<i>Plymouth.</i>
Atwood, H. G.	<i>Newfields.</i>
Avery, J. C.	<i>Wolfeboro.</i>
Ayres, P. W.	<i>Boston, Mass.</i>
Barber, A. G.	<i>Reading, Mass.</i>
Barnard, E. B.	<i>Riverdale.</i>
Barnard, G. E.	<i>Contoocook.</i>
Bartlett, P. N.	<i>Meredith.</i>
Batchelder, D. F.	<i>Hampton Falls.</i>
Bennett, G. A.	<i>Newmarket.</i>
Bennett, H. W. N., M. D.	<i>Manchester.</i>
Blaisdell, W. S.	<i>East Rochester.</i>
Boynton, F. W.	<i>Tilton.</i>
Brackett, C. H.	<i>Greenland.</i>
Brown, A. J.	<i>Fremont.</i>
Buckshorn, L. H.	<i>Concord.</i>
Burpee, F. A.	<i>Peterborough.</i>
Clifford, G. W.	<i>South Berwick, Me.</i>
Colburn, E.	<i>New Boston.</i>
Colburn, E. S.	<i>Hathorne.</i>
Colman, V. M.	<i>Newington.</i>
Corey, H. T.	<i>Manchester.</i>
Dame, J.	<i>New Boston.</i>
Davis, M. C.	<i>North Conway.</i>
DeMeritt, Albert	<i>Durham.</i>
Dimond, Oliver Carter	<i>West Concord.</i>
Doe, Frank E., 2d.	<i>Durham.</i>
Doe, Robert	<i>Dover.</i>
Durell, F. J.	<i>Newmarket.</i>
Elkins, B. W.	<i>Hampton Falls.</i>
Flood, T. E.	<i>Short Falls.</i>
Garvin, S. R.	<i>Dover.</i>
Gould, R. T.	<i>Contoocook.</i>
Gowell, J. O.	<i>Berwick, Me.</i>
Grey, M. J.	<i>Everett, Mass.</i>
Hall, L. M.	<i>Nashua.</i>
Hanson, C. E.	<i>Tilton.</i>
Hazen, C. D.	<i>White River, Vt.</i>
Hazen, C. H.	<i>Whitefield.</i>
Hazen, R. E.	<i>South Weare.</i>
Horton, Norman	<i>New Boston.</i>

Name.	Residence.
Jackson, G. R.	Conway.
Littlefield, I. L.	New London.
Meserve, Winthrop S.	Durham.
Mills, M. L.	Durham.
Milne, G. G.	Monadnock.
Montgomery, W. L.	Contoocook.
Moore, H. D.	Peterborough.
O'Conner, S. A.	Manchester.
Pattee, C. B.	Goffstown.
Piper, F. H.	Belmont.
Piper, J. D.	Northwood Narrows.
Prime, Miss G. H.	Boston, Mass.
Prince, J. R.	Salisbury.
Quimby, W. E.	Deerfield.
Remick, C. M.	Portsmouth.
Roberts, A. K.	Greenland.
Roberts, S. P.	Dover.
Sanborn, R. R.	Rochester.
Sargent, C. H.	Exeter.
Shepard, Mark N.	North Londonderry.
Silver, C. L.	Salem.
Silver, E. L.	Portsmouth.
Smith, E. E.	Candia.
Smith, H. E.	Candia.
Stevens, G. D.	Epping.
Swain, D. L.	Dover.
Tasker, C. M.	Conway.
Tilton, Miss J. S.	Epsom.
Towle, P. L.	Concord.
Turner, J.	Salem Depot.
Turner, W. A.	Salem Depot.
Waterhouse, J. H.	Barrington.
Watson, A. L.	Concord.
Watson, D. A.	Durham.
Wilder, Maria	Tilton.
Woodbury, S.	New Boston.
Yeaton, G. H.	Dover.
Young, C. E.	Dartmouth Grant.

SUMMARY.

Seniors	30
Juniors	29
Sophomores	58
Freshmen	75
Students in Two-Year Course	47
Students in Ten-Week Course	8
Special Students	1
Students in One-Week Course	80
Total	328
Total (not including <i>One-Week Course</i>)	248

REGISTER OF GRADUATES.

NOTE.—The arrangement is: (a) Name in full. (b) Later degrees taken. (c) Residence at time of entering college. (d) Occupation, etc. (e) Present residence. *Dead. †Present address unknown. Graduates are earnestly requested to inform the registrar of any changes that should be made in this list.

DOCTOR OF SCIENCE.

Ned Dearborn, D. Sc., 1901. Asst. Curator of Birds, Field Museum of Natural History. *Chicago, Ill.*

MASTERS OF SCIENCE.

Albert Conradi, M. S., 1902. B. Sc. (Ag.), O. S. U., 1901. Zoölogist, South Carolina Experiment Station.

Clemson College, S. C.

John Leslie Randall, M. S., 1906. See class of 1905.

William Orrin Robinson, M. S., 1906. See class of 1905.

Lewis Hobart Kenney, M. E., 1906. See class of 1899.

John Dustin Clark, M. S., 1907. See class of 1906.

BACHELORS OF SCIENCE.

1871. 3—

William Preston Ballard, Concord. Farmer.

R. F. D., Route 1, Concord.

Lewis Perkins, Hampton. Retired. *Hampton.*

Charles Henry Sanders, Penacook. Merchant.

4 Elm St., Penacook.

1872. 2—

Edwin Bartlett, Bath. Farmer. *Spearville, Ford Co., Kansas.*

Frank Alexander White, Bow. Surveyor, Farmer.

Route 4, Concord.

1873. 3—

†Frederick Erasmus Eldredge, Kensington.

James Fred Smith, A. B., A. M., Dartmouth, 1885; A. M., Stanford, 1900. Principal of High School.

43 McCoy Ave., Campbell, Cal.

Charles Henry Tucker, Plaistow. Woodworker.

24 Highland St., Amesbury Mass.

1874. 2—*1

Millard Fillmore Hardy, Rev., Nelson. Graduated Theo. Inst., Ct., 1878. Clergyman. *East Jaffrey.*

*Henry Abbott Sawyer, North Weare.

1875.

11—*3

Walton Herman Aldrich, M. D., Univ. N. Y. City, 1880; Troy.
Physician and Surgeon. *Marlborough.*

†Frank Pierce Curtis.

Frank Veranus Emerson, Lebanon. Manager Axe Manufacturing
Plant. *Masconia Terrace, East Lebanon.*

Charles Webster Hardy, M. D., Mo. Med. Coll., 1881; Marlbor-
ough. Physician and Surgeon.

201 So. Main St., Ottawa, Kansas.

Harvey Jewell, Winchester. Fruit Grower and Poultryman.

R. F. D. 1, Cromwell, Conn.

*Charles Ormille Leavitt, Lebanon.

*John Loney McGregor, D. D. S., Phila. Dental Coll., 1877, M. D.
Dartmouth, 1883; Whitefield.

Eliel Peck, Lebanon, Postmaster.

Kimball, Stearns County, Minn.

†Ira William Ramsey, Walpole.

Orlando Leslie Seward, Keene. Artist. *287 Church St., Keene.*

Emery Mason Willard, Harrisville. Druggist, 15 Union Street,
Boston, Mass. *109 Hewlett St., Roslindale, Mass.*

1876.

7—

Herbert Cyril Aldrich, Troy. Insurance and Real Estate.

329 West 4th St., Los Angeles, Cal.

†Edmund Lawson Brigham, Jaffrey. Mechanic.

Joseph Warren Butterfield, Westmoreland. Farmer.

Montpelier, Vt.

Arthur French Chamberlain, Westmoreland. New York and For-
eign Buyer, of Edson Keith & Co.

132 Michigan Ave., Chicago, Ill.

Anson Ballard Cross, Holyoke, Mass. Contractor and Builder
of Railroads. *Main St., Wilmington, Vt.*

Warren Webster Kimball, Troy. Merchant. *Troy.*

Daniel Deeth Parker, Fitzwilliam. With Heywood Brothers and
Wakefield Company. *Box 56, Gardner, Mass.*

1877.

13—*5

Rollin Kirk Adair, Indian Territory. Retail Groceries.

Chelsea, Indian Ter.

*Homer Brooks, M. D., N. Y. Hom. Med. Coll., 1881, Franconia.

John Washington Carson, Mount Vernon. Farmer and Land Sur-
veyor. *Francestown.*

*Charles Otto Chubert, Troy.

*Charles Albert Edwards, LL. B., Univ. of Iowa, 1880; Keene.

*William Francis Flint, Richmond.

Clinton Camillus Hall, Westmoreland. Secretary Bearshead Farmers. *4 Tyner Ave., Pine Castle, Fla.*

John Goodrich Henry, M. D., Dartmouth, 1880; Chesterfield. Physician. *15 Pleasant St., Winchendon, Mass.*

*Charles Pitkin Hollister, North Montpelier, Vt.

George Mirick Holman, M. D., Fitchburg, Mass. Teacher.

33½ Boylston St., Boston, Mass.

Charles Appleton Hubbard, Troy. Treasurer United Fruit Company. *Board of Trade Building, 131 State St., Boston, Mass.*

Carlos Augustus Wheeler, East Calais, Vt. Bee Keeper and Farmer. *Bracken, Comal Co., Texas.*

Everard Whittemore, Fitzwilliam. Insurance and Real Estate.

14 River St., Hudson, Mass.

1878.

3—*1

†Ezra Eastman Adams, Manchester.

*Elmer Kilburn, Marlow.

Charles Edward Record, Fitchburg, Mass. Contractor and Builder. *73 Green St., Leominster, Mass.*

1879.

6—*2

Charles Hardy Bailey, M. D., Dartmouth, 1881. Physician.

39 East Broadway, Gardner, Mass., Station A.

Richard Clinton Chapin, Chicopee, Mass. With American Writing Paper Company. *107 Carlton St., Holyoke, Mass.*

*Lucius M. Cragin, Lempster.

*Nathaniel Cutler Holmes, Jaffrey.

Fred Charles Parker, Lempster. Traveling Salesman.

6 Essex St., Concord.

George Henry Wilkins, M. D., N. Y. Hom. Med. Coll., 1883; Amherst. Physician. *324 Walnut St., Newtonville, Mass.*

1880.

1—

Charles Harvey Hood, Derry. Milk and Creamery Business.

2 Benton Road, Somerville, Mass.

1881.

14—*1

Edwin Thompson Aldrich, Troy. General Insurance Agent.

Bridgman's Block, 9 Central Sq., Keene.

Henry Lyman Barnard, Troy. Clerk.

Troy.

*George Jordan Boardman, Lawrence, Mass.

Edwin Franklin Bristol, Harwinton, Conn. Farmer.

Ascutneyville, Vt.

Artemas Terald Burleigh. Farmer and Lumber Dealer.

Main St., Franklin.

Frank Dana Ely, Cavendish, Vt. Electrician with Vermont
Marble Company. *6 School St., Proctor, Vt.*

Sanford Eugene Emery, LL. B., Albany Law School, 1886;
Proctorsville, Vt. Attorney-at-Law. *Proctorsville, Vt.*

Charles Herbert Hazen, Hartford, Vt. Farmer and Gardener.
R. F. D. 3, Whitefield.

Frank P. Marston, Hartford, Vt. Real Estate and Insurance.
Savings Bank Bldg., Hudson, Mass.

William Augustus Megrath, M. D., Dartmouth, 1886; Cavendish,
Vt. Physician. *Loudon.*

Fred Townsend Stanton, Strafford. Farmer.

R. F. D. No. 1, Rochester.

Victor Hugo Stickney, M. D., Dartmouth, 1883; Tyson, Vt. Physi-
cian and Surgeon. *101 Sims Ave., Dickinson, N. Dak.*

Samuel Austin Wallace, Ph. G., Boston School of Pharmacy, 1886;
West Hartford, Vt. Druggist. *Crookston, Minn.*

George Herbert Witcher, Strafford, District Superintendent of
Schools. *Berlin.*

1882.

9—*2

Harvey Lincoln Boutwell, LL. B., Boston University, 1886; Hop-
kinton. Attorney-at-Law, 209 Washington Street, Boston,
Mass. *37 Pierce St., Malden, Mass.*

Dana Justin Bugbee, North Pomfret, Vt. Mining in Colorado.
North Pomfret, Vt.

*Robert Fletcher Burleigh, M. D., Dartmouth, 1887; Franklin.
La Forrest John Carpenter, Surry. Farmer.

R. F. D. No. 1, Shirley, Mass.

Edwin Preston Dewey, Hanover. City Engineer.
237 Olive Ave., Long Beach, Cal.

George Andrew Loveland, LL. B., University of New York, 1886,
Norwich, Vt. Section Director United States Weather Bureau.
1130 So. 20th St., Lincoln, Neb.

†John Wright Mason, Hanover.

Harlan Addison Nichols, M. D., Derry. Physician and Surgeon.
Montezuma Copper Co., Nacozari, Sonora, Mexico.

*Frank Elmer Thompson, Stark.

1883.

12—

Elmore Ferdinand Arnold, M. D., University City of New York,
1885; Londonderry, Vt. Physician.

902 Broadway, New York, N. Y.

Frank Landor Bigelow, Proctorsville, Vt. Business. *Rutland, Vt.*
 Frederick Stocks Birtwhistle, Troy. Private business. *Troy.*
 Noice D. Bristol, Harwinton, Conn. Photographer.

2665 Medary Ave., Columbus, O.

Frederick Plummer Comings, Lee. *Lee.*

Frank Harry Follansbee, Canaan. Railway Postal Clerk.

41 Sharon St., West Medford, Mass.

†Adams Clark French, M. D., D. O., Franklin Falls. Physician.

James Edgar Gay, Tunbridge, Vt. Woolen Manufacturer.

Cavendish, Vt.

Elmer Daniel Kelley, Franklin Falls. Farmer and Business.

445 Central St., Franklin Falls.

Alvah Benjamin Morgan, Canaan. Pharmacist. *Woodstock, Vt.*

William Lincoln Whittier, Deerfield. Foreman of Machine Shop.

121 Rantoul St., Beverly, Mass.

†Charles Minot Woodward, Hanover.

1884.

8—*1

*Ernest Smith Cummings, Lee.

Fred Carlos Davis, South Reading, Vt. Lawyer, Civil Engineer
 and Farmer. *123 South St., Springfield, Vt.*

Sylvester Miller Foster, Riverhead, N. Y.

Hokanum Farm, Westport, Conn.

Herbert Harvey Kimball, M. S., Columbian University, 1900, Hop-
 kinton. Professor of Meteorology, U. S. Weather Bureau.

1819 Monroe St., Washington, D. C.

Moses Bisbee Mann, Benton. Deputy Surveyor of Customs.

Custom House, Boston, Mass.

George Milton Moore, Plymouth, Vt. Real estate, Insurance, and
 Independent Timber Cruiser. *112 Main St., Ludlow, Vt.*

Ziba Amherst Norris, Lyme. Dealer in Groceries and Provisions,
 Wholesale and Retail.

587-593 Washington St., Dorchester, Mass.

Edwin Chapin Thompson, Lee. In charge Local Office, Weather
 Bureau. *Observation Bldg., LaCrosse, Wis.*

1885.

11—

George Ellsworth Adams, Weston, Vt. Merchant. *Vernal, Utah.*

Ruel Seabury Alden, Lyme. Superintendent Vermont Marble
 Company's Farms. *Proctor, Vt.*

Walter Eugene Angier, C. E., Dartmouth, 1887; West Swanzey.
 Civil Engineer. *Office, 1750 Monadnock Block, Chicago, Ill.*

Edward Alonzo Bailey, West Swanzey. Chair Maker.

55 Pine St., Keene.

†Phillips Greenleaf Bickford, Lyme.

Andrew Walter Brill, Riverhead, L. I. Clerk North British and
Mercantile Fire Insurance Company, 76 William Street, New
York, N. Y. *Hempstead, N. Y.*

†Paul Cuff Brooks, Boston, Mass.

Frank Jay Emerson, Epping. Civil Service, U. S. Govt.
Box 312, Portsmouth.

Allen Hazen, Wilder, Vt. Consulting Civil Engineer.
103 Park Ave., Cor. 41st St., New York, N. Y.

George Mayo Mullins, Londonderry. Attorney-at-Law.
727 Symes Bldg., 16th and Champa Sts., Denver, Colo.

Albert Henry Wood, Lebanon. Grain Merchant.
26 Pleasant St., Framingham, Mass.

1886.

6—

Frank Albert Davis, M. B., M. D., Boston University School of
Medicine, 1897, 1898; South Lee. Physician.
Hotel Buckminster, 645 Beacon St., Boston, Mass.

James Ellsworth Harvey, Surry. Photographer.
51 North Main St., Concord.

Belezar Stoianoff Ruevsky, Tirnovo, Bulgaria. Maître au Gym-
nase de garçon du Gouvernement, Tirnovo, Bulgaria.
Termoro, Bulgaria.

Madison Templeton Thurber, M. D., Dartmouth, 1890, Webster.
Physician. *85 Savin Hill Ave., Boston, Mass.*

Edward Hills Wason, New Boston. Attorney-at-Law. Trustee
New Hampshire College. *142 Main St., Nashua.*

George Pillsbury Wood, Lebanon. Draftsman in charge, Bureau
of Yards and Docks, Navy Department.
3407 Holmead Place, N. W., Washington, D. C.

1887.

5—

William Sprague Currier, Norwich, Vt. Local Forecaster United
States Weather Bureau. *1631 Nicholas Bldg., Toledo, Ohio.*

Arthur Woodbury Hardy, C. E., Dartmouth, 1889; Hopkinton.
Manager Western Sprinkler Risk Association.
240 La Salle St., Chicago, Ill.

George Albert Sanborn, Rochester. Salesman.
34 Pine St., Rochester.

Hiram Newton Savage, C. E., Dartmouth; White River Junction,
Vt. Civil Engineer. *Helena, Mont.*

Bion Leland Waldron, Strafford. Official in charge United States
Weather Bureau. *Government Bldg., Hannibal, Mo.*

1888.

9—*1

*Melvin Burnside Carr, North Haverhill.

†Herbert Grant Davis, South Lee.

Edwin Chandler Gerrish, Webster. Assistant Paymaster and
Long Distance Farmer. 66 Broadway, Lowell, Mass.

†William Nelson Hazen, C. E., Dartmouth, 1890.

Edward David O'Gara, Hanover. Farmer. Hanover.

George Elmer Porter, M. D., Dartmouth, 1892; Hartford, Vt.
Physician and Chemist. 36 Beach St., Hartford, Conn.

George Jonathan Sargent, Canterbury. Retired. Canterbury.

John Warren Smith, M. S., 1900; Grafton. Section Director
United States Weather Bureau.

16 East Broad St., Columbus, Ohio.

George Elwin Walker, Littleton. Farmer. Franconia.

1889.

7—*1.

Fred Harvey Colby, Hopkinton. Fruit Grower. Hopkinton.

†Linwood Carroll Gillis.

*Louis Jerome Hutchinson, Norwich, Vt.

John Lawrence Norris, Lyme. Norris Brothers, Groceries and
Provisions. President of the Dairy Association Company,
Lyndonville, Vt.; Secretary and Treasurer of Photo Fabric
Company of America. Lyndonville, Vt.Charles Walter Earl Scott, Winchester. Refrigerating Engineer.
Ramona Heights, San Diego, Cal.

David Elmer Stone, Hartford, Vt. Grain Merchant.

Framingham Center, Mass.

Fred Washburne, West Springfield. Foreman of Foundry Depart-
ment, Sargent and Company.

56 Carmel St., New Haven, Conn.

1890.

4—

John Young Jewett, C. E., Dartmouth, 1895; Gilford. Cement
Expert, United States Reclamation Service.

408 Commonwealth Bldg., Denver, Colo.

†Joseph Franklin Preston, Hanover.

Elihu Quinby Sanborn, Webster. Machinist. Contoocook.

Clarence Ira Slack, Norwich, Vt. Cashier.

51 North Market St., Boston, Mass.

1891.

3—

Ernest Gowell Cole, Hampton. Postmaster and Merchant.

Hampton.

- Russell Marden Everett, Chester. Patent Lawyer and Solicitor.
788 Broad St., Newark, N. J.
- Edward Payson Stone, Canaan Center. Farmer. Orford.
1892. 4—
- Percey Lovejoy Barker, C. E., Dartmouth, 1894; Milford. Supervisor of Bridges and Buildings, N. Y. C. & H. R. R. R.
Jersey Shore, Penn.
- Fred Driggs Fuller, Hanover. General Manager and Chemist, Pennsylvania Primo Feed Co., Inc., Harrisburg, Penn.
720 N. 16th St., Harrisburg, Penn.
- Arthur Benezette Hough, Lebanon. Dairy Farmer. Lebanon.
- Edward Monroe Stone, C. E., Dartmouth, 1894; Marlborough. Architect and Engineer. 49 Pearl St., Hartford, Conn.
1893. 6—
- Wilton Everett Britton, Ph. D., Yale, 1903; Keene. State Entomologist. 296 McKinley Ave., New Haven, Conn.
- Frank John Bryant, Enfield. Postoffice Clerk. Lebanon.
- Charles Elbert Hewitt, M. M. E., Cornell, 1895; Hanover. Professor of Electrical Engineering, New Hampshire College.
Durham.
- Charles Lincoln Hubbard, M. E., 1895; Fitzwilliam. Consulting Engineer and Literary Work.
283 Central St., Auburndale, Mass.
- Orrin Moses James, Northwood. Civil Engineer State Highway Department. Northwood Narrows.
- Arthur Whitmore Smith, M. Sc., Ph. D., Norwich, Vt. Assistant Professor of Physics, University of Michigan.
1008 Oakland Ave., Ann Arbor, Mich.
1894. 3—
- Bert Sargent Brown, Hanover. Farmer. Hollis.
- Fred Willis Gunn, Keene. Machinist.
25 Franklin St., Boston, Mass.
- Frederic William Howe, Hollis. Professor of Chemistry, Food and Dietetics, State Normal School, Framingham, Mass., Scientific Director Walker Gordon Laboratory Company, and Director of Food Laboratory, Boston Floating Hospital.
9 Elm St., Framingham, Mass.
1895. 4—
- Frank Stanley Adams, Gilsum. In office Vermont Farm Machine Company. 35 Atkinson St., Bellows Falls, Vt.

Frank Clifton Britton, Keene. In charge Cost-Accounting Department, Sullivan Machinery Company.

7 Prospect St., Claremont.

Henry Elmer Hill, Plainfield, Vt. Arizona Lumber Co.

Plainfield, Vt.

Charles Arthur Trow, Mont Vernon. Chief Engineer, California Midland Railroad Company.

40 1-2 Third St., Marysville, Cal.

1896.

1—

Lewis Harris Kittredge, Keene. President the Peerless Motor Car Company.

Overlook Road, East, Cleveland, Ohio.

1897.

17—*1

Harlan Winfred Barney, Grafton. With Amoskeag Manufacturing Company.

112 Myrtle St., Manchester.

Carrie Augustus Bartlett, Lee. Principal Lowell Avenue School, Haverhill, Mass.

Route 1, Newmarket

Mary Blaisdell Bartlett (Mrs. I. A. Colby), Epping.

112 Fountain Ave., Ellwood City, Penn.

Walter French Buck, Manchester. Teacher.

129 W. Elm St., Brockton, Mass.

Arthur Willard Colburn, Dracut, Mass. Farmer.

Dracut, Mass.

Carrie Lydia Comings, Durham. Teacher, Beverly High School.

28 Abbott St., Beverly, Mass.

Irving Lyford Dennett. Steam Engineer.

Box 158, Edgewater, N. J.

*Mary Elizabeth Comings (Mrs. I. L. Dennett), Durham.

Elwin Henry Forristall, M. Sc., 1900, Columbia. Supt. Massachusetts Agricultural College Farm.

Amherst, Mass.

Leslie David Hayes, Durham. Instructor of Descriptive Geometry, Sibley College, Cornell University.

400 Stewart Ave., Ithaca, N. Y.

†John Norton Hunt, Peterborough.

Peterborough.

Ellery Dunbar Jenkins, Lee. Chemist, Lowell Fertilizer Company.

P. O. Box 105, Lowell, Mass.

†Woodruff Mason, Stamford, Conn.

Roscoe Hart Shaw, Milton. Dairy Expert, United States Department of Agriculture.

University of Missouri, Columbia, Mo.

Charles William Vickery, Dover. License Clerk in Office of District Clerk, 2d Division.

Nome City, Alaska.

†Delbert Amos Wheeler, South Ashburnham, Mass.

Everett Sidney Whittemore, Colebrook. Carpenter and Builder.

North Conway.

1898.

18—*2.

*Richard Cole Butterfield, Westmoreland.

Helen Buzzell, (Mrs. Alexander McRae), Lee. *R. F. D., 5, Dover.*

Bernice Elisabeth Caverno (Mrs. E. H. Hancock), Durham.

Somerville, Mass.

Burton Albert Corbett, Colebrook. Seed Potato Specialist and
Breeder of Holstein-Friesian Cattle. *Colebrook.*

Alfred Caverly Durgin, Lee. Farmer and Fruit Grower.

R. F. D., Newmarket.

James Alfred Foord, Walpole. Professor of Farm Administration and Acting Head of the Division of Agriculture, Massachusetts Agricultural College. *Amherst, Mass.*

John Williams Fullerton, Somersworth. Paymaster with Great Falls Woolen Company. *Somersworth.*

Arthur Given, Durham. Chemist Bureau of Chemistry, United States Department of Agriculture.

1110 16th St., N. W., Washington, D. C.

Edward Henry Hancock, Belmont. Mechanical Engineer.

494 Rutherford Ave., Boston, Mass.

Mabel Lucy Hayes, Durham. Teacher in Dover High School.

Durham.

*Tomokichi Hirokawa, B. S., Massachusetts Institute of Technology, Imabari, Japan.

Harry Clinton Mathes, Newmarket. Inspector Penn., New York and Long Island Railroad Company.

195 10th St., Long Island City, N. Y.

Herbert Fisher Moore, M. E., Cornell, 1899; M. M. E., Cornell, 1903; Penacook. Special Investigator, Illinois Engineering Experiment Station. *710 West Hill St., Champaign, Ill.*

Gerry Austin Morgan, Goffstown. Draftsman with Taft-Pierce Manufacturing Company.

93 Blackstone St., Woonsocket, R. I.

Harry Putnam Richardson, Milford. With Southern Pacific Railroad. *560 10th St., Oakland, Cal.*

†Fred Dexter Sanborn, Ashland.

Fred Webster Smith, Franklin Falls. Representative of George D. Mayo Machine Company. *Sixth and Arch Sts., Laconia.*

Benjamin D. Tolles, Somersworth. With Great Falls Manufacturing Company, Department of Carding. *Berwick, Maine.*

1899.

12—

Henry Clark Baker, South Yarmouth, Mass. Engineer, Sales Department, Crocker-Wheeler Company. *Ampere, N. J.*

Harry Everett Barnard, Nashua. State Food and Drug Commissioner,
State House, Indianapolis, Ind.

Harrison Edward Clement, Nashua. Mining Engineer. Member
of firm Clement and Strange, Engineers and Contractors.

626 Dooley Block, Salt Lake City, Utah.

Irving Atwell Colby, Exeter. Designer with Shelby Steel Tube
Company. *112 Fountain Ave., Ellwood City, Penn.*

Willis Daniel Farley Hayden, Hollis. Superintendent Middle-
brook Farm. *90 Stark Ave., Dover.*

Frederick Libbey Horton, Dover. Engineering Department, Gen-
eral Electric Company.

35 Lovers' Leap Ave., Lynn, Mass.

William Elmer Hunt, Nashua. Captain Twenty-Second United
States Infantry. *Nome, Alaska.*

Lewis Hobart Kenney, M. E., Pownal Me. Draftsman-in-charge,
Dept. of Steam Engineering, U. S. Navy Yard.

U. S. Navy Yard, Phila., Penn.

Grace Agnes Mark (Mrs. Herbert F. Moore), Gilsom.

710 West Hill St., Champaign, Ill.

Arthur Zebulon Norcross, Rindge. Farmer. *R. D., Pomfret, Conn.*

Harry Nelson Putney, Franklin. Machinist Boston and Maine
Motive Power Department. *Concord.*

Etta Lillian Simpson, Durham. Principal Dartmouth, Mass.,
High School. *795 Columbia Road, Dorchester, Mass.*

1900.

12—

Herbert Prescott Andrews, Hollis. Engineer, Century Electric
Company. *404 North 4th St., St. Louis, Mo.*

David Burns Bartlett, J. B. and J. M., Boston University Law
School, 1907; Manchester. Attorney.

53 State St., Boston, Mass.

Frances Burnham (Mrs. Robert McA. Keown), Durham.

206 No. Brooks St., Madison, Wis.

Blanche Mary Foye, Durham. Teacher of French and German in
High School. *Concord, Mass.*

Charles Elliot Page Mathes. Manager Contract Department,
Little Rock Railway and Electric Company.

115 West 4th St., Little Rock, Ark.

Edward Emil Nelson, Nashua. With American Smelting and Re-
fining Co. *Garfield, Utah.*

Alvena Pettee (Mrs. Edward E. Nelson), Bachelor's Diploma in
Domestic Science, Teachers' College, Columbia University,
1903; Durham. *Garfield, Utah.*

Marie Livingstone Robertson (Mrs. Benjamin M. Duggar), Buffalo, N. Y. *5 East Ave., Ithaca, N. Y.*

Walter Noah Shipley, Nashua. Steam Turbine Department, General Electric Company. *138 Lakeview Ave., Lynn, Mass.*

Charles Edwin Stillings, Somersworth. Power House Operator. With Interborough Rapid Transit Company, New York City. *74th St. and East River, New York, N. Y.*

John Ernest Wilson, Hollis. Electrical Contractor. *217 1-2 West 1st St., Los Angeles, Cal.*

Robert Morrill Wright, Hill. Law Student in Office of Streeter and Hollis. *Concord.*

1901.

13—

Henry Harold Calderwood, Nashua. Production Department, General Electric Company. *428 Central St., Saugus, Mass.*

Charles Henry Courser, Warner. In charge of steam operation for the Edison Electric Illuminating Company, 360 Pearl St., Brooklyn, N. Y. *388 E. Second St., Brooklyn, N. Y.*

Alice Emerson Dorr (Mrs. Lewis Cilley), Dover. *30 Fisher St., Dover.*

Harry Willis Evans, Portsmouth. Assistant Engineer, Detroit River Tunnel Company. *15 Alexandrine Ave., Detroit, Mich.*

Harry Gilbert Farwell, Keene. Engineering Department, General Electric Company. *403 Summer St., Lynn, Mass.*

Ella Gertrude Gowen, Dover. Private business. *15. Lexington St., Dover.*

Charles Almon Hunt, Nashua. First Lieutenant, Seventh U. S. Infantry. *Manila, P. I.*

Edwin Price Jewett, Lakeport. Farmer. *Laconia.*

Robert McArdle Keown, Pomona, Fla. Assistant Professor in Machine Design, University of Wisconsin. *206 No. Brooks St., Madison, Wis.*

Elmer Eugene Lyon, Wentworth. Principal of High and Graded Schools, *Covington, La.*

George J. Penneo, Hampstead. Farmer. *Hampstead.*

Harold Morrison Runlett, Durham. Wholesale Shoe Business. With Clark Hutchinson Company. *121 Duane St., New York, N. Y.*

Edson Albert Straw. With the A. K. Co., Box Department. *Ashland.*

1902.

9—

Mary Doe (Mrs. Charles H. Ayres), Rollinsford. *21 W. 31st St., New York, N. Y.*

- †Edwin W. Gilmartin, Nashua. *16 Blossom St., Nashua.*
 John C. Kendall, Peterborough. Professor of Dairy Husbandry,
 Kansas State Agricultural College. *Manhattan, Kan.*
 Harry M. Lee, Moultonborough. Foreman Estate of F. A. Ken-
 nedy. *Windsor, Vt.*
 Abiel A. Livermore, Wilton. Rose Grower.
290 Salem St., Wakefield, Mass.
 George E. Merrill, B. Ag., Cornell University, 1903; Newburyport,
 Mass. Editor of Agricultural Text books, International Cor-
 respondence School. *Scranton, Pa.*
 Charles A. Payne, Portsmouth. Technical Assistant Heating—
 Engineering Department, General Electric Company.
320 McClellan St., Schenectady, N. Y.
 Eugene P. Runlett, Durham. With Williams and Clark, Shoe
 Manufacturers, Lynn, Mass.
 Arthur L. Sullivan, Suncook. Chemist, Food and Drug Inspec-
 tion, Bureau of Chemistry, United States Department of Agri-
 culture. *825 Allison Street, Washington, D. C.*

1903.

10—

- Harry David Batchelor, West Upton, Mass. Chief Chemist, By-
 Product Coke Department of Carnegie Steel Works and Fur-
 naces, Sharon, Penn. *Box 491, Sharon, Penn.*
 Edgar Forest Bickford, Rochester. Electrical Engineer with Bos-
 ton and Northern Street Railway Company and Old Colony
 Street Railway Company. *84 State St., Boston, Mass.*
 Frank Ray Brown, Durham. Instructor in Shopwork, New Hamp-
 shire College. *Durham.*
 Everett William Burbeck, Haverhill. Mining and Civil Engineer
 with Oliver Iron Mining Company. *Box 370, Eveleth, Minn.*
 †Everett Garfield Davis, Newmarket.
158 Massachusetts Ave., Cambridge, Mass.
 †Albert Noah Otis, Durham.
 Ralph Harvey Rollins, East Concord. Engineer United States
 Reclamation Service. *Yuma, Ariz.*
 Morris Archer Stewart, Dover. Chemist, Bryan, Marsh Company.
Central Falls, R. I.
 David Albert Watson, Durham. Farming.
R. F. D. No. 1, Durham.
 Melvin Johnson White, M. A., Univ. of Wisconsin, 1907; Farming-
 ton. Instructor of American History in High School.
208 No. Brooks St., Madison, Wis.

1904.

11—

Leander Ashton, Pittsfield. Gardener.

256 Kent St., Brookline, Mass.

Walter Allen Barker, Pittsfield. Building Inspector for Standard Oil Company. *580 Chelsea St., East Boston, Mass.*

Edgar Charles Bickford, Durham. *Durham.*

Percy Anderson Campbell, Litchfield. Professor of Animal Industry, University of Maine. *Orono, Maine.*

Carroll Winfred Farr, North Weare. Dairy Farmer and Breeder of Ayrshire Cattle. *North Weare.*

Joseph Ezra Goodrich, New Durham. Master of Ridge School.

Chapin Cottage, Washington, Conn.

George Herbert Hill, La Crosse, Wis. Draughtsman at Office of Superintendent of Motive Power, Chicago, Burlington and Quincy Railroad. *C. B. and Q. R. R., Aurora, Ill.*

Thomas Jefferson Laton, Nashua. Instructor in Mechanical Drawing, New Hampshire College. *Box 155, Durham.*

Raymond Louis Lunt, Dover. Electrical Engineer.

6641 Kimball Ave., Chicago, Ill.

Arthur Ronello Merrill, North Bridgton, Me. Dairy Farmer.

Norfolk St., Holliston, Mass.

†Samuel Ambrose Richardson, Charlestown.

1905.

18—*2

John Henry Chesley, Rockingham. Turbine Testing Department, General Electric Company. *77 Mall St., West Lynn, Mass.*

Cleon Orestes Dodge, Sunapee. Chemist, Bureau of Chemistry, Department of Agriculture. *1329 11th St., Washington, D. C.*

Silas Bryden Hayden, South Natick, Mass. Draftsman.

550 La Salle Ave., Chicago, Ill.

Harry Linwood Hayes, Exeter. Testing Department, General Electric Company. *Schenectady, N. Y.*

Warren Chauncey Hayes, Durham. Instructor, Lyndon Institute. *Lyndonville, Vt.*

Fred Harvey Heath, Warner. Instructor in Massachusetts Institute of Technology. *Boston, Mass.*

*Harold Nims Knight, Marlborough.

Joseph Wesley Moreton, Medford, Mass. Electrical Engineer, Niagara, Lockport and Ontario Power Company.

Y. M. C. A. Bldg., Buffalo, N. Y.

Orlo Dudley Mudgett, Gilmanton. Assistant Superintendent Belfast Gas and Electric Company. *92 Main St., Belfast, Me.*

Horace James Pettie, Durham. Structural Draftsman, Illinois Steel Company. *7121 Central St., Rogers Park, Chicago, Ill.*

- Arthur Mahlon Pike, Dover. Construction Foreman, General Electric Company. *84 State St., Schenectady, N. Y.*
- Fred Silver Putney, M. S., Penn. State College, 1908, Hopkinton. Assistant to the Dean and Director, Agricultural College and Experiment Station. *Columbia, Mo.*
- John Leslie Randall, M. S., Lee. Superintendent Nature Study and School Gardening. *707-11 Bijou Bldg., Pittsburg, Penn.*
- William Orrin Robinson, M. S., Marlborough. Physical Chemist, Bureau of Soils, Department of Agriculture. *Washington, D. C.*

*Harry Union Russell, West Derry.

- Elmer Seth Savage, Lancaster. Instructor in Animal Husbandry, Cornell University. *606 No. Aurora St., Ithaca, N. Y.*
- Castine Caroline Swanson, Cambridge, Mass. Social Worker, Woman's Educational and Industrial Union, Boston, Mass. *193 Westminster Ave., Arlington, Mass.*
- Frank Alvin Tinkham, Grafton. Farming. *E. Grafton.*

1906.

18—

- Samuel Taylor Adams, Pittsfield. Private Business. *Pittsfield.*
- Stuart Kendrick Barnes, Walpole. Chemist, American Glue Company. *Peabody, Mass.*
- Charles S. Batchelder, South Hampton. Assistant Engineer under Foster, Towle. *Fort Shaw, Mont.*
- Willis Cassius Campbell, West Windham. Teacher. *14 Lincoln Ave., New Rochelle, N. Y.*
- John Dustin Clark, Nashua. Associate Professor of Chemistry, University of New Mexico. *Albuquerque, N. Mex.*
- Clarence Elbert Clement, Derry. Dairyman. *239 Washington St., Newton, Mass.*
- †Ernest Luther Converse, Amherst.
- †Neil Starr Franklin, Bernardston, Mass.
- Carl Tilson Fuller, Nashua. Chemical Engineer, General Electric Company Lamp Works. *Harrison, N. J.*
- William Safford Gooch, Exeter. Engineering Department, New England Telegraph and Telephone Company. *164 High St., Boston, Mass.*
- Ralph Edward Gowen, Stratham. Meteorologist. *947 Calle Cuyo, Buenos Ayres, Argentine Republic.*
- Edwin Davis Hardy, Nashua. Erecting Engineer with Westinghouse Machine Company. *The Winston, San Francisco, Cal.*
- Cyrus Fremont Jenness, Gonic. Market Gardening. *Waban, Newton Centre, Mass.*

Allen Montague Johnson, Nashua. Salesman, Westinghouse Electric and Manufacturing Company. *131 State St., Boston, Mass.*
 Wallace Fuller Purrington, South Yarmouth, Mass. Assistant Chemist, Food and Drug Inspection.

818 Church St., Nashville, Tenn.

Edwin Jay Roberts, Laconia. *Laconia.*

Roy Vance Swain, Barrington. Teacher of Mathematics in Coe's Northwood Academy. *Northwood Centre.*

Charles Leo Tuttle, Exeter. Engineering Department, New England Telegraph and Telephone Company.

164 High St., Boston, Mass.

1907.

14—

Leon Dexter Batchelor, West Upton, Mass. Instructor in Horticulture, Cornell University. *804 E. Seneca St., Ithaca, N. Y.*

Philip Ray Berry, Alton. *R. F. D. 2, Alton.*

Andrew Broggini, Concord. Calculator, Turbine Testing Department, General Electric Company.

77 Mall St., West Lynn, Mass.

Harold Hurst Dickey, Manchester. Manager of St. Paul Marine Company. *209 Coleman Bldg., Seattle, Wash.*

Carl Austin Dodge, New Boston. Assistant Chemist, Welsbach Light Company. *Gloucester City, N. J.*

Harry Edward Ingham, Nashua. Instructor in Shopwork, New Hampshire College. *Box 155, Durham.*

Frank Davis Lane, Manchester. Instructor, Manor School, Stamford, Conn. *79 Walnut St., Manchester.*

Ralph Albion Littlefield, Portsmouth. Dairy Farming. *N. Reading, Mass.*

Bernard C. Noyes, Lisbon. Massachusetts State Forest Service. *Room 7, State House, Boston, Mass.*

John Glen Powers, Concord. *76 No. Spring St., Concord.*

Frank Wiggin Randall, Portsmouth. Commercial Department, Ellenville Electric Company. *Ellenville, N. Y.*

Ellice Storrs Townsend (Mrs. C. D. Hazen, Jr.), Lebanon. *White River, Vt.*

Lucia Soule Watson, Durham. Teacher of Science in High School. *Fort Fairfield, Me.*

Arthur Jason Woodward, Lancaster. Testing Department, General Electric Company. *8 Lenox Road, Schenectady, N. Y.*

1908.

30—

Waldo Lawrence Adams, Townsend, Mass. Assistant Chemist, New Hampshire Experiment Station. *Durham.*

- Arthur Hosea Barton, Newport. General Electric Company.
71 Mall St., West Lynn, Mass.
- †Arthur Milliken Batchelder, Suncook.
- Minot Giles Buss, Wilton. Teacher Berlin High School. *Berlin.*
- Lawrence Andrew Carlisle, Exeter. *18 Oak St., Exeter.*
- James Dennis Cash, Massabesic. Forestry.
Dartmouth College Grant, Wentworth Location, N. H.
- Mary Abbie Chesley, Durham. Teacher. *Thetford, Vt.*
- Francis Clough, Contoocook. General Electric Company.
77 Mall St., West Lynn, Mass.
- Charles Francis Cone, Nashua. Electrical Testing.
71 Mall St., West Lynn, Mass.
- Merton Maine Cory, Nashua. General Electric Company.
Revere Beach, Mass.
- John Timothy Croghan, Concord. Chief Engineer, Concord Electric Company. *15 Capitol St., Concord.*
- Katharine DeMerritt, Durham. Studying in France.
- Walter Woods Evans, East Kingston. Instructor in Chemistry, University of Toronto.
Chemical Dept., Univ. of Toronto, Toronto, Ont.
- Oren Lovell Farwell, Chesham. White River Dairy Association.
White River, Vt.
- Harry Fifield French, Plymouth. Assistant Chemist, State Laboratory of Hygiene, Concord. *16 South St., Concord.*
- Stanley Fiske Hill, Nashua. Tool Designer.
11 Harrison Ave., Beverly, Mass.
- Merritt Chase Huse, Concord. Illuminating Engineer. Engineering Department, Holophane Company. *Newark, N. J.*
- William R. Kirkpatrick, Nashua. Gypsy Moth Inspector, U. S. Govt. *Box 77, Nashua.*
- John Joseph O'Connor, Portsmouth. Superintendent of River Works at General Electric Company.
71 Mall St., West Lynn, Mass.
- John Caleb Page, Dover. Principal of High School.
Belvidere, N. J.
- George Arthur Perley, Goffstown. Assistant Instructor in Electro Chemistry, Cornell University.
302 Mitchell St., Ithaca, N. Y.
- Sarah Elizabeth Pettee, Durham. Dietitian, American Hospital.
City of Mexico, Mex.
- James Henry Priest, Manchester. Testing Department, General Electric Company. *613 Chapel St., Schenectady, N. Y.*
- Moses Herman Sanborn, Fremont. *Fremont.*

- Dean Fred Smalley, Walpole. General Electric Company.
Lynn, Mass.
- Carl Brown Tarbell, Milton. Surveying. *No. Rochester.*
- Ray Emery Wadleigh, Kensington. Illuminating Engineer,
 Southern Electric Company. *423 N. Calvert St., Baltimore, Md.*
- †George Lyman Waite, Dunbarton.
- Harold Duncan Walker, Kittery, Me. Draughtsman, U. S. Navy
 Yard. *Portsmouth.*
- Francis Ward Woodman, W. Derry. Assistant in Agricultural
 Chemistry at University of Missouri.
417 Witt St., Columbia, Mo.

1909.

33—

- Laurence Day Ackerman, Bristol. Assistant Chemist of By-Prod-
 uct Coke Department, Carnegie Steel Company.
Box 491, Sharon, Penn.
- Henry Edward Batchelder, Exeter. Teacher.
Ellis Ave., Chicago, Ill.
- Edna Olive Brown, Rye Beach. *Rye Beach.*
- William Smith Campbell, Litchfield. Switchboard Operator,
 Seattle Electric Company. *Y. M. C. A., Seattle, Wash.*
- Lucy Abby Drew, Colebrook. Teacher in High School. *Colebrook.*
- Perry Foss Ellsworth, Meredith. With Meredith Telephone Com-
 pany. *Meredith.*
- John Ironside Falconer, Milford. *Milford.*
- Ernest Roslyn Fellows, Exeter. Testing Department, General
 Electric Company. *Schenectady, N. Y.*
- Otis Dana Goodwin, Hollis. *Hollis.*
- Charles William Kelley, Barnstead. Traveling Engineer.
- Carl Duncan Kennedy, Concord. Assistant Chemist, Hatch Ex-
 periment Station. *14 Pleasant St., Amherst, Mass.*
- Wilfred F. Langelier, Nashua. *9 Oak St., Nashua.*
- Bernard Ayers Lougee, Pittsfield. Westinghouse Electric and
 Manufacturing Company. *Turtle Creek, Penn.*
- Frank E. McKone, Dover. General Electric Company, West Lynn,
 Mass. *145 North Common St., West Lynn, Mass.*
- Maurice Davis Merrill, Andover. *Andover.*
- John Edward Parker, Goffstown. Farming. *Goffstown.*
- Albert Peaslee, Gonic. Teacher Manual Training. *Lowell, Mass.*
- Herbert Samuel Pike, Lisbon. B. S. Sturtevant Company.
Hyde Park, Mass.
- Lester Albert Pratt, Alton Bay. Assistant in Chemistry, New
 Hampshire College. *Durham.*

Harold Wallace Quimby, Northwood Narrows.

Northwood Narrows.

Charles Sidney Richardson, Cornish Centre. *Cornish Centre.*

George Jackman Sargent, Concord. Post graduate, Cornell University. *Ithaca, N. Y.*

Lee Lawrence Smalley, Walpole. *Terrace Farm, Walpole.*

Ernest Morton Stevens, Andover. Instructor in Mathematics, Rockland Military Academy. *West Lebanon.*

Iva Dorothy Stokes, Gossville. *Gossville.*

Harry Storrs Townsend, Lebanon. Farming. *Lebanon.*

John Paul Trickey, Rochester. Chemical Department, University of Toronto. *Toronto, Ont.*

Chester Snell Wendell, Dover. Graduate Student, Harvard University. *Cambridge, Mass.*

Stephen Neal Wentworth, Rochester. Assistant Chemist, American Glue Company. *Peabody, Mass.*

Howard Erwin Wilder, Amesbury, Mass. Surveyor (Northern Pacific Railroad). *1024 W. Augusta Ave., Spokane, Wash.*

Harold Hartshorn Wilkins, Amherst. Employed by Frank Hartshorn in lumber business. *Amherst.*

Chester Loring Wood, Dudley, Mass. Landscape Gardener. *Box 253, Webster, Mass.*

Arthur Page Woods, Bath. Post graduate, Cornell University. *Ithaca, N. Y.*

TWO-YEAR COURSE IN AGRICULTURE.

†Lyman Charles Stratton, Hollis, 1897.

Charles Wesley Martin, Durham, 1898. Assistant in Manufacturing, Sacramento Gas, Electric and Railway Company.

3018 Orange Ave., Oak Park, Sacramento, Cal.

George Henry Wheeler, Temple, 1898. Farmer. *Temple.*

Fred Joseph Durell, Newmarket, 1900. Farmer. *Newmarket.*

Harry Alvin Elliott, Lyme, 1900. Blacksmith. *Lyme.*

Edward Augustus Hills, Hollis, 1900. Farmer. *Hollis.*

Albert Cate Knowles, Epsom, 1900. Farmer and Seed Agent. With Dunlap & Sons, Nashua. *Epsom.*

†Robert Hale Pearson, Webster, 1900.

Charles Nicklin Blodgett, Hebron, 1901. Farmer of New Hampshire State Sanatorium. *Warren Summit.*

Harry Douglass Verder, Hollis, 1901. Stock Raiser. *Hollis.*

Rufus Leonard Cushman, North Adams, Mass. 1901. Gardener. *No. Auburn, Mass.*

†George R. Brew, Lowell, Mass., 1902.

- Carroll W. Farr, North Weare, 1902. B. S. New Hampshire College, 1904.
- George F. Hills, Hollis, 1902. Farmer. *Hollis.*
- Walter E. Quimby, Deerfield, 1902. Farm Superintendent. *Leavitt's Hill.*
- Walter P. Tenney, Chester, 1902. Homedale Farm. *Chester.*
- †Thornton N. Weeks, Greenland, 1902.
- †Robert E. Whittier, Deerfield, 1902.
- Edward C. Wilson, Wilton, 1902. Traveling Salesman for Swift and Company. *201-11 Jackson St., Seattle, Wash.*
- Harry Garfield Brierley, Dover, 1903. Farmer. *Stratham.*
- †George Grover Manning, Boston, Mass., 1903.
- James Henry Nixon, East Brentwood, 1903. Superintendent Boulder Brook Farm. *R. F. D., Center Harbor.*
- Roscoe Franklin Swain, South Hampton, 1903. Dairy Farmer. *Amesbury, Mass.*
- Erland Graves Batchelder, Wilton, 1904. Dairy Farmer, Poultryman and Fruit Grower. *Wilton.*
- Wesley Pillsbury Flint, Newburyport, Mass., 1904. Office State Entomologist. *Urbana, Ill.*
- Henry Marston Shurbert, Northwood Ridge, 1904. Gardener W. E. Barrett Estate. *West Newton, Mass.*
- Arthur G. Dunn, Harrisville, 1905. Farmer. *Medfield, Mass.*
- Henry N. Gowing, Dublin, 1905. Poultryman and Fruit Grower. *Dublin.*
- Alfred Walter Clough, 1906. Farmer. *Greenland.*
- Oliver Carter Dimond, West Concord, 1906. Farmer. *R. F. D. No. 12, West Concord.*
- Ralph Wayne Forristall, Alstead, 1906. Farmer. *Alstead.*
- Stanley Hargreaves, 1906. Assistant, Forest Park. *Springfield, Mass.*
- Robert S. Sawyer, 1906. Farmer. *Walpole.*
- †David Raymond Batchelder, Wilton, 1907.
- Alfred Elwin Blood, East Sullivan, 1907. Farmer. *R. F. D. 2, Gardner, Mass.*
- Abram Lawrence Dean, Taunton, Mass., 1907. Student at College of Agriculture, Cornell University. *404 College Ave., Ithaca, N. Y.*
- Simes Frink, Newington, 1907. Farmer. *Newington.*
- William Patrick Hickey, Bow, 1907. General Labor Foreman Carnegie Steel Company. *Newark, N. J.*
- Frederick Henry Charles Kampe, East Alstead, 1907. Agriculturist. *East Alstead.*

- Lee Augustus Parker, Keene, 1907. Gardener.
195 Eastern Ave., Keene.
- †Lewis Elwell Sanborn, Ashland, 1907.
- Ernest Eugene Tucker, Durham, 1907. Head Gardener Private Estate.
Monadnock.
- Charles Shannon Wright, Portsmouth, 1907. Student New Hampshire College.
Durham.
- George A. Holmes, Langdon, 1908.
Langdon.
- Guy Leavitt, Sanbornton, 1908. *R. F. D. 1, Laconia.*
- Harold Thom Littlefield, Salem Depot, 1908. *Salem Depot.*
- Luther D. Colburn, New Boston, 1909. Farmer. *New Boston.*
- Claudian F. Hill, Wakefield, Mass., 1909. Grower and Jobber of Popping Corn, Wakefield, N. H. *Woodman.*
- Leslie C. Martin, Chicopee, Mass., 1909. Farmer.
27 Lemuel Ave., Chicopee, Mass.
- Iru M. Waite, Goffstown, 1909. *Goffstown.*

SUMMARY.

Graduates, Bachelors of Science, 1871-1909.....	373
Graduates, Two Year Course.....	50
Agriculturists	50
Business Pursuits	61
Chemists	24
Civil, Mechanical, Electrical and Mining Engineers....	81
Graduate Students	4
Lawyers	7
Ministers	1
Physicians	13
Retired	5
Teachers	47
Unknown	50
United States Army	2
United States Weather Bureau	6
Dead	22

ALPHABETICAL LIST OF GRADUATES.

- Ackerman, L. D., 1909.
Adams, E. E., 1878.
Adams, G. E., 1885.
Adams, F. S., 1895.
Adams, W. A., 1908.
Adams, S. T., 1906.
Adair, R. K., 1877.
Alden, R. S., 1885.
Aldrich, W. H., 1875.
Aldrich, H. C., 1876.
Aldrich, E. T., 1881.
Andrews, H. P., 1900.
Angier, W. E., 1885.
Arnold, E. F., 1883.
Ashton, L., 1904.
Bailey, C. H., 1879.
Bailey, E. A., 1885.
Baker, H. C., 1899.
Ballard, W. P., 1871.
Barker, P. L., 1892.
Barker, W. A., 1904.
Barnard, H. E., 1899.
Barnard, H. L., 1881.
Barnes, S. K., 1906.
Barney, H. W., 1897.
Bartlett, Miss C. A., 1897.
Bartlett, D. B., 1900.
Bartlett, E., 1872.
Bartlett, Miss M. B., 1897.
Barton, A. H., 1908.
Batchelder, A. M., 1908.
Batchelder, C. S., 1906.
Batchelder, D. R. (2-year), 1907.
Batchelder, E. G. (2-year), 1904.
Batchelder, H. E., 1909.
Batchelor, H. D., 1903.
Batchelor, L. D., 1907.
Berry, P. R., 1907.
Bickford, E. C., 1904.
Bickford, E. F., 1903.
Bickford, P. G., 1885.
Bigelow, F. L., 1883.
Birtwhistle, F. S., 1883.
Blodgett, C. N. (2-year), 1901.
Blood, A. E. (2-year), 1907.
*Boardman, G. J., 1881.
Boutwell, H. L., 1882.
Brew, G. R. (2-year), 1902.
Brierley, H. G. (2-year), 1903.
Brigham, E. L., 1876.
Brill, A. W., 1885.
Bristol, E. F., 1881.
Bristol, N. D., 1883.
Britton, F. C., 1895.
Britton, W. E., 1893.
Broggini, A., 1907.
*Brooks, H., 1877.
Brooks, P. C., 1885.
Brown, B. S., 1894.
Brown, Miss E. O., 1909.
Brown, F. R., 1903.
Bryant, F. J., 1893.
Buck, W. F., 1897.
Bugbee, D. J., 1882.
Burbeck, E. W., 1903.
Burleigh, A. T., 1881.
*Burleigh, R. F., 1882.
Burnham, Miss F., 1900.
Buss, M. G., 1908.
Butterfield, J. W., 1876.
*Butterfield, R. C., 1898.
Buzzell, Miss H., 1898.
Calderwood, H. H., 1901.
Campbell, P. A., 1904.
Campbell, W. C., 1906.
Campbell, W. S., 1909.
Carlisle, L. A., 1908.
Carpenter, L. J., 1882.
*Carr, M. B., 1888.
Carson, J. W., 1877.
Cash, J. D., 1908.
Caverno, Miss B. E., 1898.
Chamberlin, A. F., 1876.
Chapin, R. C., 1879.

*Dead.

- Chesley, J. H., 1905.
 Chesley, Miss M. A., 1908.
 *Chubert, C. O., 1877.
 Clark, J. D.; M. S., 1907.
 Clement, C. E., 1906.
 Clement, H. E., 1899.
 Clough, A. W. (2-year), 1906
 Clough, F., 1908.
 Colby, F. H., 1889.
 Colby, I. A., 1899.
 Colburn, A. W., 1897.
 Colburn, L. D. (2 year), 1909.
 Cole, E. G., 1891.
 Comings, Miss C. L., 1897.
 Comings, F. P., 1883.
 *Comings, Miss M. E., 1897.
 Cone, C. F., 1908.
 Conradi, Albert; M. S., 1902.
 Converse, E. L., 1906.
 Corbett, B. A., 1898.
 Cory, M. M., 1908.
 Courser, C. H., 1901.
 *Cragin, L. M., 1879.
 Croghan, J. T., 1908.
 Cross, A. B., 1876.
 *Cummings, E. S., 1884.
 Currier, W. S., 1887.
 Curtis, F. P., 1875.
 Cushman, R. L. (2-year), 1901.
 Davis, E. G., 1903.
 Davis, F. A., 1886.
 Davis, F. C., 1884.
 Davis, H. G., 1888.
 Dean, A. L. (2-year), 1907.
 Dearborn, N.; D. Sci., 1901.
 DeMerritt, Miss K., 1908.
 Dennett, I. L., 1897.
 Dewey, E. P., 1882.
 Dimond, O. C. (2-year), 1906.
 Dickey, H. H., 1907.
 Dodge, C. A., 1907.
 Dodge, C. O., 1905.
 Doe, Miss M., 1902.
 Dorr, Miss A. E., 1901.
 Drew, Miss L. A., 1909.
 Dunn, A. G. (2-year), 1905.
 Durell, F. J. (2-year), 1900.
 Durgin, A. C., 1898.
 *Edwards, C. A., 1877.
 Eldredge, F. E., 1873.
 Elliott, H. A. (2-year), 1900.
 Ellsworth, P. F., 1909.
 Ely, F. D., 1881.
 Emerson, F. J., 1885.
 Emerson, F. V., 1875.
 Emery, S. E., 1881.
 Evans, H. W., 1901.
 Evans, W. W., 1908.
 Everett, R. M., 1891.
 Falconer, J. I., 1909.
 Farr, C. W., 1904; (2-year), 1902.
 Farwell, H. G., 1901.
 Farwell, O. L., 1908.
 Fellows, E. R., 1909.
 *Flint, W. F., 1877.
 Flint, W. P. (2-year), 1904.
 Follansbee, F. H., 1883.
 Foord, J. A., 1898.
 Forristall, E. H., 1897.
 Forristall, R. W. (2-year), 1906.
 Foster, S. M., 1884.
 Foye, Miss B. M., 1900.
 Franklin, N. S., 1906.
 French, A. C., 1883.
 French, H. F., 1908.
 Frink, S. (2-year), 1907
 Fuller, C. T., 1906.
 Fuller, F. D., 1892.
 Fullerton, J. W., 1898.
 Gay, J. E., 1883.
 Gerrish, E. C., 1888.
 Gillis, L. C., 1889.
 Gilmartin, E. W., 1902.
 Given, A., 1898.
 Gooch, W. S., 1906.
 Goodrich, J. E., 1904.
 Goodwin, O. D., 1909.
 Gowen, Miss E. G., 1901.

*Dead.

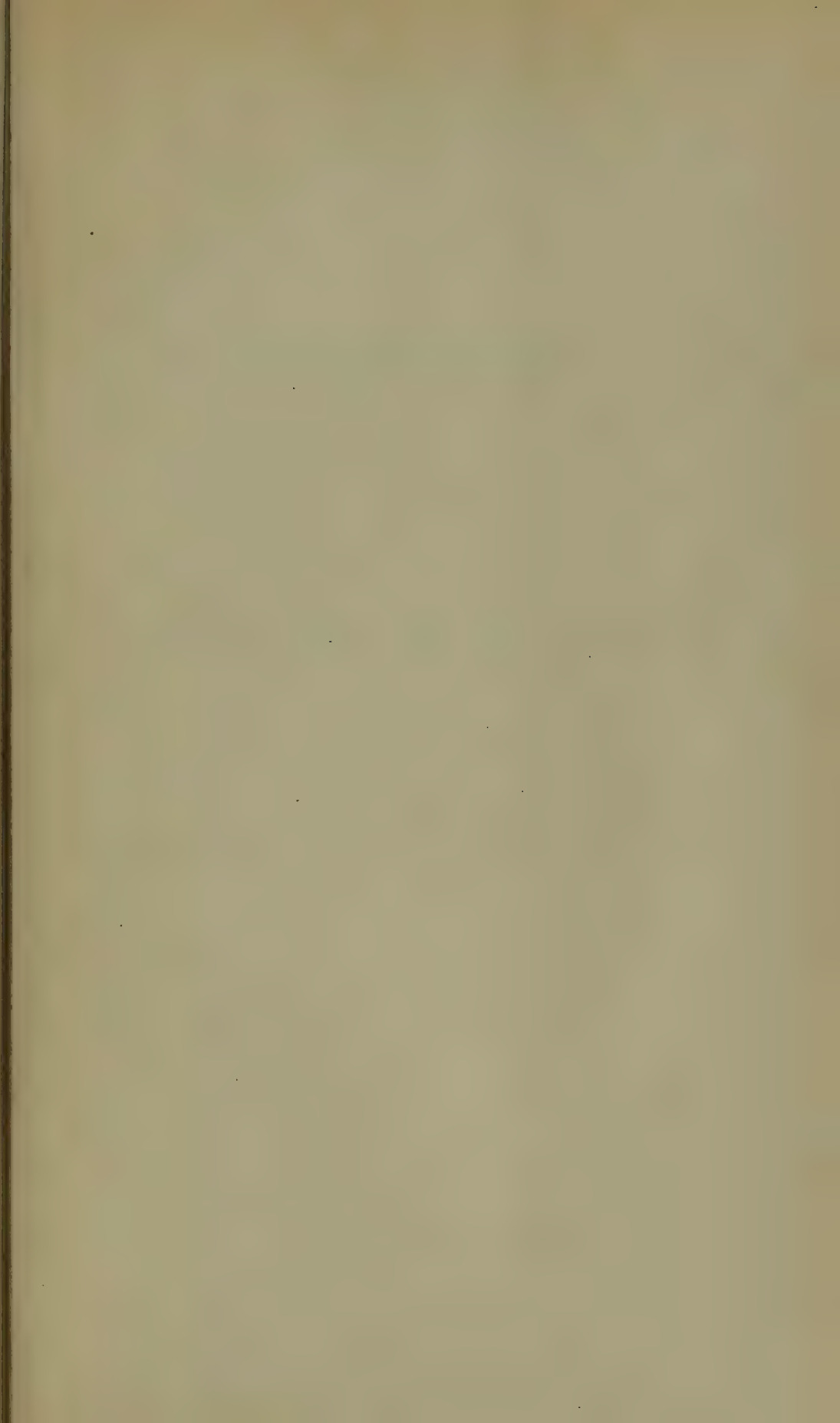
- Gowen, R. E., 1906.
 Gowing, H. N. (2-year), 1905.
 Gunn, F. W., 1894.
 Hall, C. C., 1877.
 Hancock, E. H., 1898.
 Hardy, A. W., 1887.
 Hardy, C. W., 1875.
 Hardy, E. D., 1906.
 Hardy, M. F., 1874.
 Hargreaves, S. (2-year), 1906.
 Harvey, J. E., 1886.
 Hayden, S. B., 1905.
 Hayden, W. D. F., 1899.
 Hayes, H. L., 1905.
 Hayes, L. D., 1897.
 Hayes, Miss M. L., 1898.
 Hayes, W. C., 1905.
 Hazen, A., 1885.
 Hazen, C. H., 1881.
 Hazen, W. N., 1888.
 Heath, F. H., 1905.
 Henry, J. G., 1877.
 Hewitt, C. E., 1893.
 Hickey, W. P. (2-year), 1907.
 Hill, C. F. (2-year), 1909.
 Hill, G. H., 1904.
 Hill, H. E., 1895.
 Hill, S. F., 1908.
 Hills, E. A. (2-year), 1900.
 Hills, G. F. (2-year), 1902.
 *Hirokawa, T., 1898.
 *Hollister, C. P., 1877.
 Holman, G. M., 1877.
 Holmes, G. A. (2-year), 1908.
 *Holmes, N. C., 1879.
 Hood, C. H., 1880.
 Horton, F. L., 1899.
 Hough, A. B., 1892.
 Howe, F. W., 1894.
 Hubbard, C. A., 1877.
 Hubbard, C. L., 1893.
 Hunt, C. A., 1901.
 Hunt, J. N., 1897.
 Hunt, W. E., 1899.
 Huse, M. C., 1908.
 *Hutchinson, L. J., 1889.
 Ingham, H. E., 1907.
 James, O. M., 1893.
 Jenkins, E. D., 1897.
 Jenness, C. F., 1906.
 Jewell, H., 1875.
 Jewett, J. Y., 1890.
 Jewett, E. P., 1901.
 Johnson, A. M., 1906.
 Kampe, F. H. C. (2-year), 1907.
 Kelley, C. W., 1909.
 Kelley, E. D., 1883.
 Kendall, J. C., 1902.
 Kennedy, C. D., 1909.
 Kenney, L. H. ; M. E., 1906.
 Keown, R. McA., 1901.
 *Kilburn, E., 1878.
 Kimball, H. H., 1884.
 Kimball, W. W., 1876.
 Kirkpatrick, W. R., 1908.
 Kittredge, L. H., 1896.
 *Knight, H. N., 1905.
 Knowles, A. C. (2-year), 1900.
 Lane, F. D., 1907.
 Langelier, W. F., 1909.
 Laton, T. J., 1904.
 *Leavitt, C. O., 1875.
 Leavitt, Guy (2-year), 1908.
 Lee, H. M., 1902.
 Littlefield, H. T. (2-year), 1908.
 Littlefield, R. A., 1907.
 Livermore, A. A., 1902.
 Lougee, B. A., 1909.
 Loveland, G. A., 1882.
 Lunt, R. L., 1904.
 Lyon, E. E., 1901.
 *McGregor, J. L., 1875.
 McKone, F. E., 1909.
 Mann, M. B., 1884.
 Manning, G. G. (2-year), 1903.
 Mark, Miss G. A., 1899.
 Marston, F. P., 1881.
 Martin, C. W. (2-year), 1898.

*Dead.

- Martin, L. C. (2-year), 1909.
 Mason, J. W., 1882.
 Mason, W., 1897.
 Mathes, C. E. P., 1900.
 Mathes, H. C., 1898.
 Megrath, W. A., 1881.
 Merrill, A. R., 1904.
 Merrill, G. E., 1902.
 Merrill, M. D., 1909.
 Moore, G. M., 1884.
 Moore, H. F., 1898.
 Moreton, J. W., 1905.
 Morgan, A. B., 1883.
 Morgan, G. A., 1898.
 Mudgett, O. D., 1905.
 Mullins, G. M., 1885.
 Nelson, E. E., 1900.
 Nichols, H. A., 1882.
 Nixon, J. H. (2-year), 1903.
 Norcross, A. Z., 1899.
 Norris, J. L., 1889.
 Norris, Z. A., 1884.
 Noyes, B. C., 1907.
 O'Connor, J. J., 1908.
 O'Gara, E. D., 1888.
 Otis, A. N., 1903.
 Page, J. C., 1908.
 Parker, D. D., 1876.
 Parker, F. C., 1879.
 Parker, J. E., 1909.
 Parker, L. A. (2-year), 1907.
 Payne, C. A., 1902.
 Pearson, R. H. (2-year), 1900.
 Peaslee, A., 1909.
 Peck, E., 1875.
 Penneo, G. J., 1901.
 Perkins, L., 1871.
 Perley, G. A., 1908.
 Pettee, Miss S., 1908.
 Pettee, H. J., 1905.
 Pettee, Miss A., 1900.
 Pike, A. M., 1905.
 Pike, H. S., 1909.
 Porter, G. E., 1888.
 Powers, J. G., 1907.
 Pratt, L. A., 1909.
 Preston, J. F., 1890.
 Priest, J. H., 1908.
 Purrington, W. F., 1906.
 Putney, F. S., 1905.
 Putney, H. N., 1899.
 Quimby, H. W., 1909.
 Quimby, W. E. (2-year), 1902.
 Ramsey, I. W., 1875.
 Randall, F. W., 1907.
 Randall, J. L. ; M. S., 1906.
 Record, C. E., 1878.
 Richardson, C. S., 1909.
 Richardson, H. P., 1898.
 Richardson, S. A., 1904.
 Roberts, E. J., 1906.
 Robertson, Miss M. L., 1900.
 Robinson, W. O. ; M. S., 1906.
 Rollins, R. H., 1903.
 Ruevsky, B. S., 1886.
 Runlett, E. P., 1902.
 Runlett, H. M., 1901.
 *Russell, H. U., 1905.
 Sanborn, E. Q., 1890.
 Sanborn, F. D., 1898.
 Sanborn, G. A., 1887.
 Sanborn, L. E. (2-year), 1907.
 Sanborn, M. H., 1908.
 Sanders, C. H., 1871.
 Sargent, G. Jackman, 1909.
 Sargent, G. Jonathan, 1888.
 Savage, E. S., 1905.
 Savage, H. N., 1887.
 *Sawyer, H. A., 1874.
 Sawyer, R. S. (2-year), 1906.
 Scott, C. W. E., 1889.
 Seward, O. L., 1875.
 Shaw, R. H., 1897.
 Shipley, W. N., 1900.
 Shurbert, H. M. (2-year), 1904.
 Simpson, Miss E. L., 1899.
 Slack, C. I., 1890.
 Smalley, D. F., 1908.

- Smalley, L. L., 1909.
Smith, A. W., 1893.
Smith, F. W., 1898.
Smith, J. F., 1873.
Smith, J. W., 1888.
Stanton, F. T., 1881.
Stevens, E. M., 1909.
Stewart, M. A., 1903.
Stickney, V. H., 1881.
Stillings, C. E., 1900.
Stokes, Miss I. D., 1909.
Stone, D. E., 1889.
Stone, E. M., 1892.
Stone, E. P., 1891.
Stratton, L. C. (2-year), 1897.
Straw, A. E., 1901.
Sullivan, A. L., 1902.
Swain, R. F. (2-year), 1903.
Swain, R. V., 1906.
Swanson, Miss C. C., 1905.
Tarbell, C. B., 1908.
Tenney, W. P. (2-year), 1902.
Thompson, E. C., 1884.
*Thompson, F. E., 1882.
Thurber, M. T., 1886.
Tinkham, F. A., 1905.
Tolles, B. D., 1898.
Townsend, H. S., 1909.
Townsend, Miss E. S., 1907.
Trickey, J. P., 1909.
Trow, C. A., 1895.
Tucker, C. H., 1873.
Tucker, E. E. (2-year), 1907.
Tuttle, C. L., 1906.
Verder, H. D. (2-year), 1901.
Vickery, C. W., 1897.
Wadleigh, R. E., 1908.
Waite, G. L., 1908.
Waite, I. M. (2-year), 1909.
Waldron, B. L., 1887.
Walker, G. E., 1888.
Walker, H. D., 1908.
Wallace, S. A., 1881.
Washburne, F., 1889.
Wason, E. H., 1886.
Watson, D. A., 1903.
Watson, Miss L. S., 1907.
Weeks, T. N. (2-year), 1902.
Wendell, C. S., 1909.
Wentworth, S. N., 1909.
Wheeler, C. A., 1877.
Wheeler, D. A., 1897.
Wheeler, G. H. (2-year), 1898.
Whitcher, G. H., 1881.
White, F. A., 1872.
White, M. J., 1903.
Whittemore, E., 1877.
Whittemore, E. S., 1897.
Whittier, R. E. (2-year), 1902.
Whittier, W. L., 1883.
Wilder, H. E., 1909.
Wilkins, G. H., 1879.
Wilkins, H. H., 1909.
Willard, E. M., 1875.
Wilson, E. C. (2-year), 1902.
Wilson, J. E., 1900.
Wood, A. H., 1885.
Wood, C. L., 1909.
Wood, G. P., 1886.
Woodman, F. W., 1908.
Woods, A. P., 1909.
Woodward, A. J., 1907.
Woodward, C. M., 1883.
Wright, C. S. (2-year), 1907.
Wright, R. M., 1900.

*Dead.



CATALOG

OF THE

NEW HAMPSHIRE COLLEGE

OF

Agriculture and the Mechanic Arts

DURHAM, NEW HAMPSHIRE

1910-1911



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CALENDAR

1910

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1912

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COLLEGE CALENDAR.

1910.

- Sept. 9-13. Examinations for admission begin Friday at 8.30 a. m.
 Sept. 14. Registration, Wednesday. First semester begins.
 Oct. 12. Stated meeting of Trustees.
 Nov. 23. College closes Wednesday at 11.50 a. m.

THANKSGIVING VACATION.

- Nov. 29. College opens Tuesday at 8 a. m.
 Dec. 23. College closes Friday night.

CHRISTMAS VACATION.

1911.

- Jan. 5. College opens Thursday at 8 a. m.
 Jan. 11. Stated meeting of Trustees.
 Jan. 26-31. Mid-year examinations.

WINTER VACATION.

- Feb. 9. Registration, Thursday. Second semester begins.
 April 12. Stated meeting of Trustees.
 June 6. Senior examinations completed 4 p. m.
 June 7-12. Final examinations.
 June 11. Baccalaureate sermon, Sunday at 10.45 a. m.
 June 12. Prize Drill, 8 p. m., in the Armory.
 June 13. Class Day. Stated meeting of Trustees.
 June 14. Commencement Day. Senior Promenade at 8 p. m.

SUMMER VACATION.

- Sept. 8-12. Examinations for admission begin Friday at 8.30 a. m.
 Sept. 13. Registration, Wednesday. First semester begins.
 Oct. 11. Stated meeting of Trustees.
 Nov. 22. College closes Wednesday at 11.50 a. m.

THANKSGIVING VACATION.

- Nov. 28. College opens Tuesday at 8 a. m.
 Dec. 22. College closes Friday night.

CHRISTMAS VACATION.

1912.

- Jan. 4. College opens Thursday at 8 a. m.
 Jan. 10. Stated meeting of Trustees.
 Jan. 25-30. Mid-year examinations.

WINTER VACATION.

- Feb. 8. Registration, Thursday. Second semester begins.

BOARD OF TRUSTEES.

HIS EXCELLENCY, GOV. HENRY B. QUINBY, A. M., M. D., LL. D.,
ex-officio.

PRES. WILLIAM D. GIBBS, D. Sc., *ex-officio*.

HON. WARREN BROWN, Hampton Falls, *President*.

Sept. 21, 1887, to June 14, 1913.

HON. LUCIEN THOMPSON, Durham, *Secretary*.

July 28, 1892, to June 14, 1913.

HON. JOHN G. TALLANT, West Concord.

July 28, 1892, to July 20, 1912.

WALTER DREW, Colebrook.

Aug. 30, 1902, to Aug. 30, 1911.

HON. RICHARD M. SCAMMON, Stratham.

Aug. 30, 1899, to Aug. 30, 1911.

HON. ROSECRANS W. PILLSBURY, Londonderry.

Oct. 7, 1897, to Oct. 7, 1912.

HON. NAHUM J. BACHELDER, M. S., A. M., East Andover.

Jan. 5, 1905, to Jan. 5, 1911.

HON. EDWARD H. WASON, B. S., Nashua, *Alumni Trustee*.

July 1, 1907, to July 1, 1913.

GEORGE W. CURRIER, M. D., Nashua.

Oct. 9, 1906, to June 14, 1913.

HON. GEORGE H. BINGHAM, A. B., LL. B., Manchester.

Dec. 2, 1908, to Dec. 2, 1911.

RICHARD W. SULLOWAY, A. B., Franklin.

Oct. 9, 1909, to Oct. 9, 1912.

OFFICERS OF INSTRUCTION AND ADMINISTRATION.

WILLIAM D. GIBBS, D. Sc., *President of the College*.

CHARLES H. PETTEE, A. M., C. E., *Dean and Professor of Mathematics*.

CLARENCE W. SCOTT, A. M., *Professor of History and Political Economy*.

CHARLES L. PARSONS, B. S., *Professor of Inorganic Chemistry*.

FREDERICK W. TAYLOR, B. Sc. (Agr.), *Professor of Agronomy*.

ARTHUR F. NESBIT, S. B., A. M., *Professor of Physics*.

RICHARD WHORISKEY, Jr., A. B., *Professor of Modern Languages*.

FREDERIC W. PUTNAM, B. S., *Professor of Drawing and Design*.

CHARLES BROOKS, PH. D., *Professor of Botany*.

CHARLES E. HEWITT, B. S., M. M. E., *Professor of Electrical Engineering.*

BETHEL S. PICKETT, M. S., *Professor of Horticulture.*

ERNEST R. GROVES, A. B., B. D., *Professor of English and Philosophy and Secretary of the Faculty.*

FORREST E. CARDULLO, M. E., *Professor of Mechanical Engineering.*

G. W. EDGERLY, Second Lieutenant, Second U. S. Infantry, *Professor of Military Science and Tactics.*

FRED RASMUSSEN, B. S. A., *Professor of Dairying.*

C. FLOYD JACKSON, B. S., M. A., *Professor of Zoölogy.*

W. C. O'KANE, M. S., *Professor of Economic Entomology.*

T. R. ARKELL, B. S. A., *Associate Professor of Animal Husbandry.*

CHARLES JAMES, F. I. C., *Associate Professor of Inorganic Chemistry.*

FRANK C. MOORE, A. B., *Associate Professor of Mathematics.*

MABEL HODGKINS, A. B., B. S., *Librarian.*

EVAN J. DAVID, A. B., *Assistant Professor of Rhetoric and Literary Criticism.*

O. L. ECKMAN, B. S. (Agr.), *Assistant Professor of Animal Husbandry.*

THOMAS J. LATON, B. S., *Instructor in Drawing.*

W. H. WOLFF, M. S., *Instructor in Pomology.*

E. F. LITTLE, *Instructor in Woodworking.*

TELESPHORE TAISNE, B. A., B. D., *Instructor in Modern Languages.*

W. L. SLATE, Jr., B. S. (Agr.), *Instructor in Agronomy.*

JOHN C. TONKIN, *Instructor in Machine Work and Forging.*

J. J. GARDNER, B. S., *Instructor in Olericulture.*

L. W. HITCHCOCK, M. E., *Instructor in Electrical Engineering.*

S. H. KATZ, B. S., C. E., *Instructor in Chemistry.*

CAROLINE A. BLACK, A. M., *Instructor in Botany.*

DAVID LUMSDEN, *Assistant in Floriculture and Foreman of Grounds.*

LESTER A. PRATT, B. S., *Assistant in Chemistry.*

J. H. PIERPONT, B. S., *Assistant in Dairying.*

CORNELIA F. KEPHART, B. S. A., *Assistant in Zoölogy.*

CHARLOTTE A. THOMPSON, *Assistant Librarian.*

CHARLES W. STONE, A. M., *College Farmer.*

OSCAR W. STRAW, *Engineer and Curator of Buildings.*

MARCIA N. SANDERS, *Matron of Smith Hall.*

EXECUTIVE OFFICE.

MABEL E. TOWNSEND, A. B., *Registrar.*

MIRIAM L. HOBBS, *Purchasing Agent.*

M. GENEVIEVE BURT, *Bookkeeper.*

BEATRICE M. RICHMOND, *Stenographer.*

NEW HAMPSHIRE AGRICULTURAL EXPERIMENT STATION.

BOARD OF CONTROL.

HON. JOHN G. TALLANT, <i>Chairman</i> ,	West Concord
HON. WARREN BROWN,	Hampton Falls
HON. N. J. BACHELDER, A. M., M. S.,	East Andover
HON. E. H. WASON, B. S.,	Nashua
PRES. WILLIAM D. GIBBS, D. Sc., <i>ex-officio</i> ,	Durham

THE STATION STAFF.

JOHN C. KENDALL, B. S., *Director*.
 FREDERICK W. TAYLOR, B. Sc., (Agr.) *Agronomist*.
 CHARLES BROOKS, Ph. D., *Botanist*.
 FRED RASMUSSEN, B. S. A., *Dairyman*.
 B. S. PICKETT, M. S., *Horticulturist*.
 B. E. CURRY, A. B., *Chemist*.
 T. R. ARKELL, B. S. A., *Animal Husbandman*.
 W. C. O'KANE, M. S., *Entomologist*.
 CHARLES W. STONE, A. M., *Farmer, and Vice-director*.
 W. H. WOLFF, M. S., *Assistant Horticulturist*.
 DAVID LUMSDEN, *Assistant in Floriculture*.
 W. L. SLATE, Jr., B. S., (Agr.) *Assistant in Agronomy*.
 T. O. SMITH, A. B., *Assistant Chemist*.
 J. J. GARDNER, B. S., *Assistant in Olericulture*.
 CORNELIA F. KEPHART, B. S. A., *Assistant Entomologist*.
 O. L. ECKMAN, B. S., (Agr.) *Assistant Animal Husbandman*.
 CAROLINE A. BLACK, A. M., *Assistant Botanist*.
 MIRIAM L. HOBBS, *Purchasing Agent*.
 M. GENEVIEVE BURT, *Bookkeeper*.
 MABEL H. MEHAFFEY, *Stenographer*.
 MARY L. BURNHAM, *Stenographer*.

The bulletins of the Experiment Station are published at irregular intervals, and are sent *free* to all residents of New Hampshire requesting them.

FOUNDATION AND ENDOWMENT.

The New Hampshire College of Agriculture and the Mechanic Arts was incorporated by the state Legislature in 1866, under the provisions of the act of Congress, approved July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," the grant

of land having been accepted by an act of Legislature, approved July 9, 1863.

The act of 1862 provides that the income from the investment of the money realized from the sale of the lands shall be appropriated "to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, . . . in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The "Morrill Bill," which was approved August 30, 1890, and received the assent of the state by an act of Legislature, approved February 13, 1891, provides an appropriation for the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of "the act of 1862."

The appropriation under the Morrill act is "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

Under an act of Congress approved March 2, 1887, which received legislative assent August 4, 1887, was established that department of the college known as the Agricultural Experiment Station, the purpose of which was "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

Benjamin Thompson, who died January 30, 1890, was a resident of Durham, and a farmer by profession. He had at heart the agricultural interests of his native state, and in the furtherance of those interests he bequeathed to it at his death his whole estate with a few minor reservations.

Mr. Thompson's final statement of the object of his bequest was as follows: "My object being mainly to promote the improvement of agriculture, though willing that the college to be established should also provide for the mechanic arts, it is my will that the institution to be established by the state . . . shall be called and designated . . . The New Hampshire College of Agriculture and the Mechanic Arts, if that shall be the wish of the state; and that in addition to the instruction to be given therein, as provided by my said will, there shall be taught only such other arts or sciences as may be necessary to enable said state to fully avail itself of said donation of lands by the government in good faith, which two branches of instruction shall be the leading objects of said institution or college."

By the provisions of the will, the income from this source became available in 1910. This endowment amounts to nearly \$800,000, the annual income from which is about \$32,000.

The state Legislature accepted the Thompson bequest March 5, 1891, and on April 10 of the same year appropriated \$100,000 for buildings. Approximately \$50,000 was realized from the sale of property and from other sources. In 1893 an additional appropriation of \$35,000 was made by the state for completing and furnishing the buildings. Accordingly, in 1893 the college was moved from its first home at Hanover to its present location at Durham.

The general government of the college is vested in a board of thirteen trustees. The governor of the state and the president of the college are trustees, *ex-officio*; the alumni of the college elect one trustee; and all other trustees are appointed by the governor of the state, with the advice and consent of the council.

The college is executing the trust reposed in it by giving instruction in the various courses described in this catalog, under the prescribed heads of "agriculture" and "the mechanic arts."

SITUATION.

Durham, the present site of the college, is on the Portland Division of the Boston and Maine Railroad, sixty-two miles from Boston, and about midway between Rockingham Junction and the city of Dover, being five miles from the latter place.

SUNDAY SERVICES.

Although the only church in Durham is nominally Congregational, it is attended by citizens of all denominations, and sectarian lines are never drawn. It is conveniently situated, and offers ample opportunity for religious observance.

GENERAL INFORMATION.

New Hampshire College offers the following courses:

1. Agricultural Courses.
 - a. Four-Year Course.
 - b. Two-Year Course.
 - c. Ten-Week Course.
2. Mechanical Engineering Course.
3. Electrical Engineering Course.
4. Chemical Engineering Course.
5. Arts and Science Course.

The college is a part of the public school system of the state. It stands in its agricultural, mechanical, engineering, electrical engineering, technical chemistry, and general scientific courses, in the same relation to the high schools that the high schools stand to the grammar schools, and that these in turn stand to the elementary schools. In other words, it is a continuation of the grades of the public school system of the state, with special reference to the industrial pursuits, and aims to give a practical training that shall fit the student to deal with the problems of life.

TUITION AND FEES.

Tuition is \$60 a year; fees, which include all charges commonly considered extras, except those for breakage and damage to college property, are \$20 a year. They are payable in advance in two equal instalments, one on the first day of each semester. By vote of the Trustees, all members of the senior class are assessed a graduation fee of five dollars.

SCHOLARSHIPS.

Scholarships are awarded each semester at the discretion of the faculty to resident students of New Hampshire. They may be forfeited at any time for misconduct and will not be awarded except by special permission of the president, to students in the four year courses who have failed to secure an average grade of sixty or over in the previous semester. They are given for the purpose of aiding deserving students and will be withdrawn from those who use intoxicating liquor or tobacco.

Conant Scholarships.—There are twenty-five Conant scholarships, each paying tuition, \$60, fees, \$20, cash, \$20,—total, \$100. These are assigned under the following conditions:

They are to be given to young men taking the agricultural course.

Each town in Cheshire County is entitled to one scholarship, and Jaffrey is entitled to two.

They will be reserved for their respective towns until August 1 of each year. Those not taken by students from Cheshire County, and those in excess of the number of towns, will then be assigned to agricultural students from other parts of the state, and may be divided at the discretion of the president.

Senatorial Scholarships.—There are twenty-four senatorial scholarships, one for each senatorial district. Each scholarship is to pay tuition, \$60. Senatorial scholarships not filled may be assigned to students from other localities at the discretion of the faculty; they are open to students in all courses.

Grange Scholarships.—Each subordinate and Pomona Grange in New Hampshire has the privilege of appointing one student annually to a free scholarship in any of the four year or two year courses in the college.

Each scholarship is to pay the tuition of \$60. The method of appointment is entirely at the option of the grange; it may be by election, competitive examination, or otherwise. Holders of these scholarships need not be members of the grange.

Valentine Smith Scholarships.—Through the generosity of the late Mr. Hamilton Smith of Durham, the sum of \$10,000 has been given to the college to establish the Valentine Smith scholarships.

“The income thus accruing to the college shall be given to the graduate of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission to the college; *provided*,

“That if the student receiving this scholarship shall at any time prove unworthy, in the judgment of the faculty, by reason of defective scholarship or character, he shall forfeit his claim to the student most deserving; and

“That if the student receiving this scholarship shall cease to be a member of the college, the income from this fund, for the unexpired term, shall be awarded to the student most deserving in character and scholarship.”

By vote of the faculty, these scholarships will be forfeited by failure to obtain an average grade of 75 per cent. for any semester. These scholarships yield \$400 annually or one hundred dollars to each holder. Competitive examinations for this scholarship will be held at the college at the time of the entrance examinations in September, and at no other time. They are not restricted to residents of New Hampshire. Beginning June, 1912, these examinations will be given in June and not in September.

PRIZES.

Bailey Prize.—Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene, N. H., offer a prize of ten dollars for proficiency in chemistry.

Erskine Mason Memorial Prize.—Mrs. Erskine Mason of Stamford, Conn., has invested one hundred dollars as a memorial to her son, a member of the class of 1893, the income of which is to be given, for the present, to that member of the senior class who has made the greatest improvement during his course.

Chase-Davis Memorial Medals.—The Glee Club has offered to furnish yearly a gold medal to the senior who has won his N. H. and stands highest in his studies, and a silver medal to the senior who has won his N. H. and stands second in his studies, the medals to be known as the Chase-Davis memorial medals.

COLLEGE AID TO STUDENTS.

Students obtain considerable financial aid by janitorships, and work on the farm and in the greenhouse. They also find employment with the power and service department of the college and with the experiment station.

Students may purchase at cost all books, drawing instruments, materials, etc., at the college book-store in Thompson Hall.

ESTIMATE OF FRESHMAN EXPENSES.

Tuition,	Free	\$60.00
Text-books,	\$12.00 to	20.00
Military uniform for new students,	20.00 to	20.00
Drawing instruments and materials,	12.00 to	25.00
Fees,	20.00 to	20.00
Room rent, including heat and light,	30.00 to	60.00
Board, \$2.75 to \$3.50 per week, for thirty-six weeks,	99.00 to	126.50
<hr/>		
Total,	\$193.00	\$331.50

This total does not include incidentals (such as traveling expenses, laundry, etc.)

Room rent is estimated on the supposition that two students occupy the same room or suite of rooms.

The college has no rooms for men students. Rooms may be obtained either furnished or unfurnished, in buildings under private control, and are for the most part provided with heating apparatus, electric lights and baths.

Women students, unless living at home, are required to room in Smith Hall, the woman's dormitory.

Table board is \$4.00 a week and prices for rooms range from \$1.25 to \$2.00 a week. Rooms will be assigned to old students in order of their seniority, and to new students according to their date of application. Applications for rooms should be made to the dean.

REGISTRATION.

Every undergraduate student who desires to attend the college during a given semester is required to register at the registrar's office before 4 p. m. of the first day of such semester. Every former student registered after the first day of any semester will be charged for such registration a fine of one dollar for the first day and fifty cents additional for each succeeding day, to be remitted only by the president upon presentation of a substantial excuse for the delay.

ELECTION OF STUDIES.

On or before the Saturday before the last in each semester, every student is required to notify the registrar, in writing, of his elections for the semester following.

Every student who fails to fill out his elective slip on or before the date mentioned is required to pay a fine of one dollar before he can be registered for the studies of the next semester, unless he has previously obtained from the president a written excuse for delay.

Every student who, having made his elections, desires to change, is required to file with the registrar a written statement of the changes desired and his reasons therefor.

No student will be permitted to make changes in courses elected by him after one week from the time of his registration in each semester, except by vote of the faculty and the payment of one dollar.

Every student is responsible for all work assigned him on his registration card, and no credit will be given for any course unless the student is registered for the same.

ATTENDANCE.

Unless excused by proper authority, all male students are required to complete three years' satisfactory work in Drill and two years' satisfactory work in theoretical Military Science.

Students are expected to attend all convocation exercises and all meetings of the classes in which they are enrolled.

Instructors and monitors will report all absences to the registrar daily on slips provided for the purpose.

Any student whose attendance is unsatisfactory will receive a warning from the dean. If his attendance is still unsatisfactory, the dean may place him on probation.

All unexcused absences will count double on the last two days preceding and on the first two days following all vacations and holidays.

All classes will begin at seven minutes after the hour scheduled, and close promptly at the end of the hour.

EXCUSES.

The dean has the sole power to grant excuses for absence except in cases reserved for action by the president.

All applications for excuses should be made in advance at the office of the dean. When this is impossible, the application must be made within forty-eight hours of the expiration of the period of absence. If an excuse is for an indefinite time, the student must report to the registrar within forty-eight hours after his return to his studies. The dean may refuse to consider any application which does not conform to these rules.

Instruction trips of classes must be arranged with the other instructors affected, and with the dean at least one week in advance by the instructors interested.

Arrangements for trips of athletic teams must be approved by the faculty member of the athletic association, and excuses for absence on account of such trips must be obtained from the dean in advance by the managers. All non-athletic organizations are required to obtain from the president permission to leave Durham for the purpose of taking part in any public engagement.

Class and other group trips which are not for the purpose of representing the college in a public capacity must be arranged for in advance with the dean.

No student will be excused from drill on account of physical disability, unless he has obtained from the physician designated by the college a certificate to that effect.

AMOUNT OF WORK.

No student will be permitted to carry less than sixteen or more than twenty-two credit hours per week of classroom work or its equivalent, without the consent of the faculty.

Each student who is a candidate for a degree must register for the number of hours' work prescribed in each term's schedule in the course he is pursuing.

REMOVAL OF ENTRANCE CONDITIONS.

Students who have entrance conditions must, at or before the time of admission to the college, state in writing the subjects they wish to offer to make up these deficiencies.

An entrance condition in any subject not taught in the college may be removed by examination.

An entrance condition in any subject taught in college may be removed by the completion of a corresponding course in the subject, when given, in which case it will not count toward graduation; or by the completion of an advanced course in the subject, when given. In the case of an advanced course, a student must have completed an entrance course in the subject in some preparatory school or must satisfy the Entrance Committee that his preparation is sufficient to enable him to take up the work. If a grade of 70 or over is obtained, such course may count both toward entrance and graduation.

An entrance condition in any subject taught in college may be made up by examination only by special vote of the Entrance Committee.

Students who are to take examinations to make up entrance conditions may have an opportunity to do so upon the three days preceding the beginning of each semester, and upon the last Saturday of each

semester. A student who takes a deficiency examination upon an entrance subject at any other time must pay the college one dollar for each examination upon each subject.

Every student who has an entrance condition outstanding at the beginning of the third year of residence at the college or more than one at the beginning of the second year will not be allowed to register until such conditions have been removed.

REQUIREMENTS FOR ADMISSION TO FOUR-YEAR COURSES.

All candidates for admission to college must present satisfactory testimonials of good moral character.

Candidates for admission to the freshman class must offer studies amounting to a total of fifteen units.

The equivalent of work done in an approved high school for one year of five recitations a week will be accepted for one unit. However, the work of one year of four recitations a week may be accepted for one unit, provided the work is done in the last two years of a preparatory course.

AGRICULTURAL COURSE.

Candidates for admission who intend to take the Agricultural Course must offer eleven and one-half units from required subjects and three and one-half units from elective subjects, according to the following statement:

(Required) Group A (English)	4	units
" B (American History or Ancient History)	1	unit
" C (Algebra and Plane Geometry)	2½	units
" D (Physics and Biology)	2	units
" E (French or German)	2	units
	<hr/>	
	11½	units
(Elective) Groups B to F inclusive	3½	units
	<hr/>	
Total	15	units

ARTS AND SCIENCE COURSE.

Candidates for admission who intend to take the Arts and Science Course must offer ten and one-half units from required subjects and

four and one-half units from elective subjects, according to the following statement:

(Required) Group A (English)	4	units
" B (American History and Ancient History)	2	units
" C (Algebra and Plane Geometry)	2½	units
" E (French or German)	2	units
	<hr/>	
	10½	units
(Elective) Groups B to F inclusive	4½	units
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Total	15	units

ENGINEERING COURSES.

Candidates for admission who intend to take the Engineering Courses must offer eleven and one-half units from required subjects and three and one-half units from elective subjects, according to the following statement. For the present an elective half unit will be accepted in place of Trigonometry. Students offering Trigonometry for admission will be given an equivalent amount of advanced work:

(Required) Group A (English)	4	units
" B (American History or Ancient History)	1	unit
" C (Algebra, Plane and Solid Geometry and Plane Trigonometry)	3½	units
" D (Physics)	1	unit
" E (French or German)	2	units
	<hr/>	
	11½	units
(Elective) Groups B, D, E and F	3½	units
	<hr/>	
Total	15	units

GROUP A, ENGLISH.

Preparation in English has two main objects: (1) command of correct and clear English, spoken and written; (2) ability to read with accuracy, intelligence and appreciation.

The first object requires instruction in grammar and composition. The second object is sought by means of two lists of books, headed respectively Reading and Study, from which may be framed a progressive course in literature covering four years. A candidate will not be accepted in English whose work is notably deficient in point of spelling, punctuation, phraseology or division into paragraphs.

Reading.—The aim of this course is to foster in the student the habit of intelligent reading, and to develop a taste for good literature, by giving him a first-hand knowledge of some of its best specimens. He should read the books carefully, but his attention should not be so fixed upon details that he fails to appreciate the main purpose and charm of that he reads.

Study.—This part of the requirement is intended as a natural and logical continuation of the student's earlier reading, with greater stress laid upon form and style, the exact meaning of words and phrases, and the understanding of allusions. For this close reading are provided a play, a group of poems, an oration and an essay.

The first part of the examination will be upon the books prescribed for reading, and the form of the examination will usually be the writing of short paragraphs on several topics which the candidate may choose out of a considerable number. It may include also questions upon grammar and the simpler principles of rhetoric.

The second part of the examination will include composition and those books comprised in the list headed Study. The test in composition will consist of one or more essays, developing a theme through several paragraphs; the subjects will be drawn from the books prescribed for Study, from the candidate's other studies, and from his personal knowledge and experiences quite apart from reading.

The books for reading in 1911 and 1912 are:

Group I (two to be selected).

Shakespeare's *As You Like It*, *Henry the Fifth*, *Julius Cæsar*, *The Merchant of Venice*, *Twelfth Night*.

Group II (one to be selected).

Bacon's *Essays*; Bunyan's *Pilgrim's Progress*, Part I; The Sir Roger de Coverley Papers in the *Spectator*; Franklin's *Autobiography*.

Group III (one to be selected).

Chaucer's *Prologue*; Spenser's *Færie Queene*, Part I; Pope's *Rape of the Lock*; Goldsmith's *Deserted Village*; Palgrave's *Golden Treasury* (First Series) Books II and III, with special attention to Dryden, Collins, Gray, Cowper and Burns.

Group IV (two to be selected).

Goldsmith's *Vicar of Wakefield*; Scott's *Ivanhoe*; Scott's *Quentin Durward*; Hawthorne's *House of the Seven Gables*; Thackeray's *Henry Esmond*; Mrs. Gaskell's *Cranford*; Dickens' *Tale of Two Cities*; George Eliot's *Silas Marner*; Blackmore's *Lorna Doone*.

Group V (one to be selected).

Irving's Sketch Book; Lamb's Essays of Elia; De Quincey's Joan of Arc and The English Mail Coach; Carlyle's Hero as Poet, Man of Letters and as King; Emerson's Essays (selected); Ruskin's Sesame and Lilies.

Group VI (two to be selected).

Coleridge's Ancient Mariner; Scott's Lady of the Lake; Byron's Mazeppa and The Prisoner of Chillon; Palgrave's Golden Treasury (First Series), Book IV, with special attention to Wordsworth, Keats and Shelley; Macaulay's Lays of Ancient Rome; Poe's Poems; Lowell's Vision of Sir Launfal; Arnold's Sohrab and Rustum; Longfellow's Courtship of Miles Standish; Tennyson's Princess; Browning's Cavalier Tunes, The Lost Leader, How They Brought the Good News from Ghent to Aix, Evelyn Hope, Home Thoughts from Abroad, Home Thoughts from the Sea, Incident of the French Camp, The Boy and the Angel, One Word More, Hervé Riel, and Pheidippides.

The books for study in 1911 and 1912 are:

Shakespeare's Macbeth; Burke's Speech on Conciliation with America, or both Washington's Farewell Address and Webster's First Bunker Hill Oration; Macaulay's Life of Johnson or Carlyle's Essay on Burns; and either Milton's Comus, L'Allegro, and Il Penseroso or Tennyson's Gareth and Lynette, Lancelot and Elaine, and the Passing of Arthur.

GROUP B, HISTORY.

Although there are excellent text books in history, adequate preparation cannot be obtained by text book work only. Some collateral work is necessary, whatever text book is used, and with certain text books a large amount is necessary. The details of the preparatory work in history are fully stated in A History Syllabus for Secondary Schools, by the New England History Teachers' Association. Boston, D. C. Heath & Co., 1904.

American History and Civics.

The work in Civics must include at least a study of the Constitution of the United States. Representative text books are Channing's Students' History, Hart's Essentials of American History, Montgomery's Students' History and Larned's History of the United States.—1 unit.

Ancient History (Grecian and Roman).

Representative text books are Morey's Greek History, Myers' History of Greece, Allen's Roman People, Morey's Roman History, Myers' Rome, West's Ancient World, and Wolfson's Essentials of Ancient History.
— 1 unit.

English History.

Representative text books are Larned's History of England, Montgomery's English History, and Walker's Essentials of English History. An excellent preparation may be made by the combined use of Trenholme's Outline of English History, Cheyney's Short History of England and Cheyney's Readings in English History. —1 unit.

Mediaeval and Modern History.

Representative text books are Harding's Essentials of Mediæval and Modern History and Myers' Mediæval and Modern History. —1 unit.

GROUP C, MATHEMATICS.**Algebra.**

Through quadratic equations, including radicals and fractional and negative exponents, binomial theorem and progressions,—five periods per week for one and one-half years. —1½ units.

Plane Geometry.

The equivalent of Wells' presentation. —1 unit.

Solid Geometry.

The equivalent of Wells' presentation. —½ unit.

Plane Trigonometry.

The equivalent of Wells' presentation. —½ unit.

GROUP D, SCIENCE.

Accompanying the certificates for each of the sciences the student **MUST** present at entrance a note-book containing records and drawings of his or her observations and experiments in the laboratory, which must bear the certificate of the teacher in charge that the work was done personally in the laboratory.

Biology.

Students in the Agricultural Course must present either.

A. Zoölogy.

Kellogg's Elementary Zoölogy, Linville and Kelly's Text Book in General Zoölogy. Jordan, Kellogg and Heath's Animals, Needham's Lessons in Zoölogy, Coulton's Zoölogy, or an approved equivalent, occupying five periods per week for a half year, of which at least one is devoted to laboratory work. —½ unit.
and Botany.

Bergen's Elements of Botany, or an approved equivalent, occupying five periods per week for a half year, of which at least one is devoted to laboratory work. — $\frac{1}{2}$ unit.

or

B. Botany.

Coulter's Text Book of Botany, Bergen's Foundations of Botany, or an approved equivalent, occupying five periods per week for one year, of which at least one is devoted to laboratory work. —1 unit.

Chemistry.

Elementary Inorganic Chemistry equivalent to the work covered in Remsen's Briefer Course, Hessler & Smith's Essentials. McPherson & Henderson's Elementary Study or Newell's Descriptive Chemistry, accompanied in each instance with laboratory practice. —1 unit.

Geology.

Leconte's Compend or an approved equivalent. — $\frac{1}{2}$ unit.

Physics.

The preparation required for entrance in Physics shall be an equivalent of five exercises a week for one year, of which at least two are devoted to laboratory work. —1 unit.

* GROUP E, MODERN LANGUAGES.

French.

Two years are required for preparation in French. Work of the first year should include (1) careful drill in pronunciation, (2) drill upon the rudiments of grammar, (3) abundant translation of simple English prose into idiomatic French, (4) reading of from 100 to 175 pages of French prose, (5) writing French from dictation. Work of the second year should include (1) the reading of from 250 to 400 pages of easy modern prose, (2) constant practice in translating from English into French variations of the text read, (3) frequent paraphrases of the text read, (4) dictation. —2 units.

German.

Two years are required for preparation in German. Work of the first year should include (1) careful drill in pronunciation, (2) drill upon the rudiments of grammar, such as the inflection of the articles, the common nouns, adjectives, pronouns and strong and weak verbs, upon the uses of the prepositions, the modal auxiliaries and the rules of syntax and word order, (3) writing from dictation, (4) the reading

*In the year 1912-1913, preparatory schools will be required to certify with regard to the oral and aural qualification of their students.

of from 75 to 100 pages of prose, (5) translation from English into German. Work of the second year should include (1) the reading of from 150 to 200 pages of prose, (2) constant practice in translating from English into German variations of the text read, (3) dictation, (4) continued drill upon the rudiments of grammar, (5) frequent paraphrases of the text read. —2 units.

GROUP F, ANCIENT LANGUAGES.

Students entering from approved schools may receive credit in their certificates for the following work in Greek or Latin:

Greek.

Books I and II of Xenophon's *Anabasis*, Books III and IV of the *Anabasis* or their equivalent in other Attic prose. Two years' work. —2 units.

Latin.

Grammar and four books of Cæsar. Two years' work. —2 units.
Vergil, six books.
Cicero, six orations. —2 units.

Certificates.

In place of examinations, certificates will be received from approved preparatory schools, including all that have been approved by the superintendent of public instruction in New Hampshire. Approval of a school will be withdrawn whenever it appears that the work of the school does not reach the standard required by the college. No certificate will be accepted from a private tutor or instructor.

Certificates should meet the requirements in full; in case of exceptions the candidate will be examined on any requirement not covered by the certificate. If the certificate makes any exception in the case of a student who has not regularly graduated from an approved school, the certificate will not be accepted, and the student will be examined on all the requirements.

Certificates will be accepted for that work only which has been done in the certifying school, or which is necessarily involved in the work done there; work done in the grammar school must not be certified unless reviewed in the high school.

Suitable credit may be given on entrance requirements for properly certified high school work in drawing, shop-work and agriculture; also, for an extra year's work in any required or elective subject, provided after careful examination it is found that this work is additional to that regularly required.

Certificates must be made out on a blank furnished by the college, and should be mailed to the dean at the close of the school year.

Complete Certificates.

The signature of the principal is to be affixed to the general certificate, and to that of each department in which the work of the candidate is certified.

Partial Certificates.

In case the work of a graduate has not been up to certificate grade in one or more subjects, the principal is requested to sign the general certificate, crossing out the words "and that in my judgment he is prepared to enter at once upon the work of the freshman year." He is also requested to fill out the group certificates in full except signature, the signature being attached only to such as indicate certificate grade.

Divided certificates from two or more schools will be accepted when the preparatory work has been done in more than one institution.

Certificate forms will be furnished upon application.

Candidates for advanced standing are also examined in the studies that have been pursued by the class which they propose to enter.

Examinations will be given, in the subjects presented for admission, beginning Friday of the week preceding the opening of the college year. Candidates will present themselves with their credentials at the registrar's office on the first day of the examinations. Beginning June, 1912, the Valentine Smith Scholarship examinations will be held in June and not in September.

SCHEDULE FOR SEPTEMBER ENTRANCE EXAMINATIONS.**Friday, September 8, 1911.**

Mediaeval and Modern History	8.30—10.30 A. M.
Algebra	10.30—12.30 A. M.
English	1.30— 3.30 P. M.
Plane Geometry	3.30— 5.30 P. M.

Saturday September 9, 1911.

English History	8.30—10.30 A. M.
Physics	10.30—12.30 A. M.
Latin, elementary	1.30— 3.30 P. M.
Latin, advanced	3.30— 5.30 P. M.

Monday, September 11, 1911.

Chemistry	8.30—10.30 A. M.
American History	10.30—12.30 A. M.
French	1.30— 3.30 P. M.
Solid Geometry	3.30— 5.30 P. M.

Tuesday, September 12, 1911.

Ancient History	8.30—10.30 A. M.
Plane Trigonometry	10.30—12.30 A. M.
German	1.30— 3.30 P. M.
Botany	3.30— 5.30 P. M.

Wednesday, September 13, 1911.

Geology	8.30—10.30 A. M.
Zoölogy	10.30—12.30 A. M.
Greek, elementary	1.30— 3.30 P. M.

REQUIREMENTS FOR GRADUATION FROM FOUR-YEAR COURSES.

Those who complete a regular four-year course will be recommended for the degree of Bachelor of Science.

No course will be accepted as an equivalent of a regular four-year course which does not comply with all the following requirements:

1. The completion of all work common to the four-year courses.
2. The completion of one hundred fifty-four credit hours.
3. The completion of all but ten or less credit hours in some one of the regular four-year courses.
4. Approval by the faculty not earlier than June 1 preceding the year of graduation.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding commencement; and each member of the class may receive a statement of his standing at the office of the registrar at 2 p. m. on the following Thursday.

All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

THESIS.

A thesis upon some subject connected with the work of the course taken is required of candidates for a degree, in all courses except the Arts and Science Course. The subject, together with a written approval of it by the head of the department within which it lies, is to be submitted to the president before the 15th day of December preceding graduation. The thesis is to be submitted to the head of the department concerned not later than the second Tuesday preceding commencement day. The thesis is to be completed in typewritten and bound form and be in the hands of the department concerned before the Tues-

day preceding commencement day. The thesis is to be typewritten or printed upon standard thesis paper, eight and one-half by eleven inches, medium weight, neatly bound in black cloth and gilt-lettered on first cover with title, name of author, degree sought and year of graduation. This bound copy is to be filed and left with the college librarian.

BUILDINGS.

Thompson Hall is the main administrative building and contains the offices of the president, the dean, the registrar and the purchasing agent. Here also are located the Departments of History and Political Science, Drawing and Machine Design, Modern Languages, Mathematics and Zoölogy.

Conant Hall is given over wholly to the Departments of Chemistry, Physics and Electrical Engineering.

Morrill Hall contains the Experiment Station Library of over twenty-five hundred volumes, the office of the director of the Experiment Station, and the laboratories, lecture rooms and offices of the Departments of Agronomy, Animal Husbandry and Horticulture.

Nesmith Hall is occupied by the Chemical and Botanical Departments of the Experiment Station and contains the laboratory and lecture room of the Botanical Department of the College.

The Mechanical Engineering Building contains a wood shop, a machine shop, a forge shop, a foundry and the laboratories of the Mechanical Engineering Department.

In the Armory are the lecture rooms and offices of the Military Department, the rooms of the College Club and a large drill hall or gymnasium.

A new dairy building, arranged and equipped in the most up-to-date and sanitary manner, has just been completed. It contains a commercial creamery, with separator room, churning room and cold storage room; laboratories for giving instruction in milk testing, milk inspection, farm butter-making and cheese making and bacteriology; a reading and exhibition room; a class room and offices.

The college has also an insectary, a large modern dairy barn, several smaller barns for sheep, horses, etc., and a range of greenhouses especially planned for carrying on up-to-date work in greenhouse management.

Smith Hall, the woman's dormitory, was made possible by the generosity of Mrs. Shirley Onderdonk, of Durham, who gave sixteen thousand dollars as a memorial to her mother, Mrs. Alice Hamilton Smith. The remainder of the cost, \$10,000 was provided by the state. The building furnishes accommodations for thirty-two students.

In accordance with an act of consolidation between the libraries of

Durham and the college, the books of the Durham Public Library and the college are all shelved in one building and form the Hamilton Smith Public Library. This consolidation makes an especially good collection, the scientific books of the college supplementing well the more popular books of the town library. The consolidated libraries number about 26,000 bound volumes and 7,000 pamphlets.

Aside from the main library, each department has its working library of the more technical books and those which are of special use in the laboratories and work-shops.

LABORATORIES AND EQUIPMENT.

AGRONOMY.

This department is provided with a collection of dried specimens of the different forage crops; the more important varieties of corn, wheat and oats; and with a large number of lantern slides, grass charts and other illustrative material. The soil physics laboratory is equipped with soil bins, a new compacting machine, chemical and torsion balances and various kinds of physical apparatus for the study of soils, including that for the determination of specific gravity and for the making of mechanical analyses.

The agricultural museum contains many of the latest models of the different makes of farm machinery, tools and appliances, including plows, cultivators, harrows, mowers, rakes, corn and grain binders, threshers, manure spreaders, different kinds of cattle ties and various makes of patent wire fences.

The college farm, with its 300 acres of land, has a variety of soils and soil conditions suited to the growth of nearly all the important farm crops, and thus offers excellent opportunities for practical work and demonstration in the department of agronomy.

ANIMAL HUSBANDRY.

For the various courses in animal husbandry an extensive use is made of the live stock of the college farm. The dairy herd consists of representative animals of the following breeds: Ayrshires, Guernseys, Jerseys, Holsteins and Shorthorns. The college owns seven head of horses representing the draft type, and in order to become acquainted with the carriage or roadster types the students are taken to various stock farms where these types may be inspected and judged.

For the study of the different breeds of sheep and swine the experiment station flocks of pure bred Southdowns, Dorset Horns, Shropshires, Hampshires, Lincolns and Merinos and herds of Yorkshires are used.

In the agricultural building a large room is fitted up for the judging of live stock; instruments for precise measurements are provided and score cards with a scale of points for each kind of animal are used.

The class-room is provided with a stereopticon lantern and a large collection of lantern slides is used to show the leading individuals of the different breeds of live stock. The herd books of the most prominent breeds are used for the purpose of familiarizing the student with methods of tracing pedigrees and the practices of breeders' associations.

BOTANY.

The botanical laboratory is supplied with a good herbarium, charts, microscopes and the other necessary appliances.

CHEMISTRY.

The several chemical laboratories are modern in design and well equipped. Each is supplied with the latest forms of apparatus required for its particular work. Besides all necessary glass and porcelain ware, this includes water baths, drying ovens, combustion, muffle and assay furnaces, platinum dishes and crucibles, polariscope, spectroscope, balances, lantern and other lecture appliances, etc.

DAIRYING.

With the new dairy building just completed, the Dairy Department offers opportunities for instruction in practical dairy work heretofore unequalled at New Hampshire College. For the last fifteen years a commercial creamery has been conducted which has now been removed to the new building. Entirely new equipment has been installed, each piece of machinery being run by an individual motor. In addition to the product of the college herd, milk and cream are received from about forty farms in Durham and vicinity. By this arrangement sufficient milk is furnished for practical work. The farm dairy is equipped with the leading makes of hand separators and hand as well as small power churns suitable for private dairies. The milk testing and milk inspection laboratory is equipped with Babcock testers, sediment testers, acidimeters and other apparatus necessary for inspection of milk and cream both as to fat content and other qualities.

DRAWING.

For free-hand model-drawing and for mathematical drawing there is a good supply of geometric models; and for free-hand industrial drawing the nucleus of a good collection exists, consisting of plaster casts of historic ornament, details of human form and antique sculpture, as well as vases and common objects. There is an excellent collection of work-

ing models and machines for machine drawing and various machines in other departments are available for this work.

ELECTRICAL ENGINEERING.

The electrical engineering laboratories consist of two dynamo rooms, a transformer room, a photometer room, a storage battery room and a laboratory for the calibration of measuring instruments, etc. In addition to the regular laboratories, the department has available for experimental work the large alternator of the power and service department, also 75,000 watts from the Rockingham County Power and Light Company. In the main dynamo room there is a large distributing switchboard on which are mounted instruments, switches and plugging devices so arranged that it is possible to connect the various laboratories, also each lecture room, and convey thereto direct current and single, two phase and three phase alternating currents of different voltages and periodicities. The general equipment of the department includes various dynamos and motors for both direct and alternating currents, several transformers, the necessary measuring instruments, storage batteries, etc., designed and arranged so as to be adapted for the needs of special laboratory work.

FORESTRY.

A tract of 60 acres of old forest growth is owned by the college. It is located close at hand and offers ample opportunities for studying forestry. The country about Durham presents forestry conditions typical of New England, and the transplanting of trees, sowing of seeds and general questions of forestry management may here be studied in Nature's laboratory.

HORTICULTURE.

The lecture room is fitted up with a stereopticon lantern and the collection of lantern slides is being continually enlarged. The pomological and vegetable gardening laboratories are of original design and offer every facility for modern work. A great many varieties of vegetables are grown in the experiment station trial ground, and these offer exceptional opportunities for identification and study in the laboratory for some time after field conditions have gone by. The orchards, gardens and grounds also offer opportunities for demonstrating the theories advocated in the lecture-room. Propagation of fruits, shrubs and flowering plants is practised. A fine collection of Vilmorin charts is owned by the department.

MECHANICAL ENGINEERING.

The mechanical laboratory equipment includes a 40 horse-power steam engine; a steam boiler especially equipped for testing; a large duplex pump; nozzles for measurements during hydraulic tests; a

10-inch standpipe, a 6,000-gallon measuring tank and other apparatus for an extensive series of hydraulic experiments; a 50,000-pound Olsen machine with the necessary tools and measuring instruments for tension, compression and transverse tests; a 12 horse-power gas engine; a Westinghouse air-brake pump with locomotive and tender attachments; steam and gas engine indicators; a surface condenser; a Bristol pyrometer; a cement testing machine with the necessary sieves and other apparatus for testing cement according to the recommendations of the committee for cement testing; and the usual supply of scales, gauges, thermometers and small apparatus.

PHYSICS.

The department has a collection of the usual apparatus for laboratory work and lecture-room illustration.

The physical laboratory contains apparatus for studying absorption phenomena and the comparison of spectra of films, liquids, metals, etc.; for measuring the angles of crystals and indices of refraction; for verifying the laws of refraction and total reflection of light; for determining the moment of inertia of various forms of specimens. In electricity and magnetism the equipment includes instruments such as a magnetometer for studying the intensity of the earth's magnetism; a universal tangent galvanometer and an assortment of ammeters and voltmeters for measuring direct and alternating currents and voltages.

SHOPWORK.

The wood shop is supplied with benches and the necessary tools to accommodate twenty students at one time. Other equipment consists of a circular saw, board-planer, buzz-planer, jig-saw, speed-lathes and a large pattern maker's lathe with molding and boring attachments.

The equipment of the machine shop consists of engine lathes, a speed-lathe, a vertical drill, a Flather planer, a universal milling machine with gear-cutting and spiral attachments; a shaper, a power hack saw; a tool grinder; 12 benches with vises; and a large number of small tools, including micrometer, calipers and gauges necessary for accurate work.

In the forge shop are 18 Sturtevant down-draft forges with anvils and necessary tools. The blast to the forges is furnished by a No. 4 blower, and the smoke carried away by a 60-inch exhauster. These are driven by a small steam-engine.

All the shops are operated by 550-volt three-phase induction motors, suitably connected to line shafting and driving the tools by the "group plan."

SURVEYING.

The surveying instruments are sufficient in number and of the most approved pattern.

ZOOLOGY.

The zoölogical laboratory is well supplied with aquaria, microscopes, dissecting tools, charts, reference books and collections. The latter include a representative display of the birds of New Hampshire, and a very large collection of the insects of the state arranged in glass-covered boxes.

MUSEUM.

The museum had for a nucleus the collection made during the state geological survey. To this additions have been made from various sources. Specimens are being collected to illustrate the zoölogy of New Hampshire, and New Hampshire collectors and naturalists are invited to make the museum the permanent depository of their collections.

MILITARY DEPARTMENT.

This department is in charge of an officer of the United States regular army, detailed by the war department, as professor of military science and tactics. Military instruction, which is required by law, is both theoretical and practical, the former having special reference to the duties of the line.

The organization is a battalion of three companies, with a band, officered by cadets selected for character, soldierly bearing and efficiency. The federal government has furnished Krag-Jorgensen magazine rifles, model 1898, and equipment for 200 men. Attention is paid to rifle practice, the government supplying ample ammunition and target materials, and the college a good range, within four minutes' walk of the college buildings, with firing points at 200 and 300 yards. The rolling country in the vicinity of the college furnishes the best opportunities for extended order drill and field exercises, the athletic field for close order drills, and the new gymnasium or drill shed gives ample room for indoor work.

The cadets wear, whenever on military duty, and may at other times, provided the complete uniforms are worn, cadet gray uniforms with black trouser stripes, black cloth band on cuffs and collars of blouses, and gray caps, army regulation shape. Service uniform, consisting of gray flannel shirt, service hat with cord, and leggings is worn in warm weather, and for field maneuvers and extended order drills. Officers wear braid instead of cloth on collars, cuffs and on bottom and front of coat. The letters N. H. C. are embroidered in gold on each side of the blouse collar. The cost of such a uniform does not exceed \$20 and the wearing of such does away with the necessity of purchasing a civilian suit for college use.

Service in this department is optional for members of the senior classes; all other students, excepting those excused by competent authority, are required to attend both drills and recitations. Seniors who elect drill and are appointed cadet officers have their college fees remitted.

Upon the graduation of each class, the names of such students as have shown special aptitude for military service are reported to the adjutant-general of the army and to the adjutant-general of the state. The names of the three most distinguished students in this department are inserted in the United States army register.

FOUR-YEAR COURSES.

AGRICULTURAL COURSE.

This course is designed for the general education and scientific training of students in the various economic branches of agriculture. The lecture and recitation work of the classroom is supplemented largely by practical exercises in the laboratories. Seminary courses are also given, especially for seniors and advanced students. The whole curriculum is so arranged that about one third of the studies may be termed cultural, one third, scientific, and one third, technical. During the junior and senior years of this course the student has elective options on certain courses of study which enable him to specialize in animal husbandry, dairying or horticulture.

While the two-year course is intended to give the student as thorough training in the science and practical details of farm operations as the time will allow, it does not give the opportunity for a broad general foundation of pure and applied science that the four-year course affords; the latter course aims primarily to combine a college education with that of a technical vocation. Many of the graduates of the four-year course return to the farm for the purpose of putting into practice the knowledge and training of their college work, and many of them are becoming successful and prosperous citizens of the community; others who have no farms of their own accept salaried positions as superintendents or foremen on the dairy, fruit or truck farms of large owners; still others take positions as teachers of science and agriculture in our secondary and high schools or as assistants in our agricultural colleges and experiment stations.

BIOLOGICAL DIVISION OF THE AGRICULTURAL COURSE.

The biological division of the agricultural course is for the benefit of those students who desire to make a special study of some phase of natural history. It leads to such positions as teachers of botany and

zoölogy in high schools and colleges, entomologists for experiment stations, state inspectors of nursery grounds, etc. During the first two years the student pursues the regular studies of the agricultural course, but in his junior year he begins to specialize in botany and zoölogy, a considerable proportion of his time during the rest of his course being given to these subjects. Students taking this course will elect, with the advice of the instructors in charge, six hours per week of biological work in the junior year and seven hours per week during the senior year, exclusive of thesis.

CHEMICAL DIVISION OF THE AGRICULTURAL COURSE.

The work of this division is especially intended to give a thorough grounding in the principles of chemistry as applied to agriculture and agricultural chemical analysis and to train the student thoroughly in all kinds of manipulation required of the chemist in experiment stations, large dairy establishments, fertilizer works, etc.

Instruction is given mainly by personal supervision in the laboratory, accompanied by lectures, themes, recitations; and, as in the course in technical chemistry, the studies are arranged to meet the needs of the individual. Students wishing to take this course will elect, with the advice of the instructors in charge, six hours per week of chemical work during the junior year, and seven hours per week during the senior year.

ARTS AND SCIENCE COURSE.

In the Arts and Science Course those who wish a college education for its cultural value are given an academic training that especially prepares them for teaching in secondary schools, or for special work in graduate schools. By means of the group system of elective studies an opportunity is given to specialize in History, English, Mathematics, Physics, Chemistry, Modern Languages, Agriculture, Zoölogy, Botany, Drawing, Philosophy, Pedagogy and Biology.

COURSES FOR WOMEN.

Women attending the college may elect any course laid down in the curriculum, subject to the conditions prescribed for all students. They may omit manual labor on the farm and in the shop, and substitute other studies.

The Arts and Science Course, with its electives, is specially prepared for women, the Courses in Agriculture and Chemistry afford opportunities for the study of the natural sciences, and the Engineering Courses offer exceptional advantages in mathematics and physics.

CHEMICAL ENGINEERING COURSE.

This course is intended to fit for the career of a professional chemist or chemical engineer, and to give a good foundation for original and independent chemical research.

Instruction is imparted by lectures, recitations and a large amount of carefully supervised laboratory work. The laboratory course is largely an individual one, and the work of each student is conducted with reference, not only to the particular object he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a thorough training in German and French to enable him to read with ease the chemical literature; a thorough grounding in mathematics, necessary for advanced theoretical chemistry or chemical engineering; a somewhat limited amount of special engineering work both mechanical and electrical; and a thorough undergraduate training in theoretical and applied chemistry. He is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference works and chemical periodicals which the library contains. Owing to the fact that the laboratories are becoming crowded the number of students taking this course is limited to six in each class. These six are chosen at the close of the freshman year from those who have applied. Fitness to become successful chemists will alone determine the choice made.

ELECTRICAL ENGINEERING COURSE.

The electrical engineering course is intended to meet the demands of a young man fitting himself for practical and professional engineering, in connection with the various applications of electricity.

By means of lectures, recitations and laboratory work, the subjects of the course are brought to the attention of the student in such a manner as to emphasize, not only the present needs of the practitioner and engineer, but to give him the groundwork that will enable him to grasp and understand the constantly increasing number of problems that require solution.

The instruction aims to impart a complete practical and theoretical knowledge of the best modern types of electrical machines and appliances and the methods of designing, building and operating them.

The rapid progress in recent years in applying electricity to commercial uses, renders it difficult, if not impossible, for one without a technical education to gain prominence in the work and be intrusted with its more responsible positions.

MECHANICAL ENGINEERING COURSE.

Mechanical engineering is concerned with the design, construction, care and operation of machinery.

The special studies are mathematical, including a large amount of drawing; technical, pertaining directly to the professional work of the engineer; and general.

The study of the scientific principles underlying the work of the engineer is accompanied throughout the course by actual practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, chemical and physical laboratories.

POST-GRADUATE AND SPECIAL COURSES.

The college offers opportunity for post-graduate study in Agriculture, Biology and Chemistry, and on the completion of satisfactory work advanced degrees will be given. Persons of mature years presenting satisfactory evidence of their ability to complete any desired course of study may be admitted as special students by vote of the faculty.

*FOUR YEAR COURSES.

DESCRIPTION OF STUDIES.

AGRONOMY.

PROF. TAYLOR, MR. SLATE.

1. Farm Equipment and Farm Crops.

Lectures and recitations upon the selection, planning and equipment of farms; fencing; drainage; farm wells; harvesting and tillage implements; silos and stable construction, etc. History, use and methods of culture of our various farm crops. Practical exercises in leveling and laying out of drains and in the preparation of farm and building plans. Judging and scoring the different varieties of grains and grasses. For Agricultural Juniors. *Three exercises per week. 1st S.*

2. Soils and Soil Physics.

Lectures and recitations upon the formation, kinds and physical properties of soils; the movements and conservation of soil moisture; the relation of heat and air to soil; the nature and physical effects of tillage and fertilizers; laboratory work and experimentation with soils to show the physical effects of different conditions and texture. For Agricultural Juniors. *Four exercises per week. 2d S.*

*Students receiving a condition in any prerequisite subject may be allowed to take the advanced subject at the discretion of the instructor, with the proviso that if a warning is received in the advanced subject, it must be dropped.

3. Soil Management and Fertility.

An advanced course in soils for those who have shown a special aptitude in the preceding course. The processes of soil formation, the physics and chemistry of soils, soil classification and mapping and the principles of fertility will be discussed. The lecture work will be supplemented by laboratory and field experimentation. Elective for Agricultural Seniors.

Three exercises per week. 1st S.

4. Manures and Fertilizers.

A course of lectures, text book and seminary work on farm manures and commercial fertilizers. Elective for Agricultural Seniors.

Two exercises per week. 2d S.

5. Agricultural Seminary.

This course consists of library and reference work, and a study of current agricultural literature and of the history of agricultural colleges and experiment stations. Each student will prepare during the term a certain number of abstracts, reports of papers upon topics relating to agriculture. For Agricultural Seniors.

Two exercises per week. 1st S.

6. Agricultural History and Economics.

Lectures and recitations upon the history of agriculture from early Egyptian to modern American; present agricultural methods and systems in various countries; the principles of economics as applied to the organization, equipment and operation of the farm; tenancy and land ownership; practical problems in farm management. For Agricultural Seniors. First nine weeks.

Four exercises per week. 2d S.

7. Farm Mechanics.

Lectures and recitations upon the principles of construction of farm buildings; barns and silos; construction and maintenance of country roads; principles of draft; farm motors and machinery. Practical work in testing and comparisons of various makes and kinds of farm machinery. For Agricultural Seniors. Last eight weeks.

Four exercises per week. 2d S.

ANIMAL HUSBANDRY.

ASSOC. PROF. ARKELL, ASST. PROF. ECKMAN.

1. Types and Breeds of Live Stock.

A study of the different breeds of cattle, sheep, horses and swine in respect to their origin, history, development, characteristics and adaptability to different conditions of climate and soil. In the study of beef cattle, market conditions and requirements are discussed; in the study of dairy cattle, milk and butter production; and in the study

of sheep, mutton and wool production and the raising of hot-house lambs. In the study of horses, besides the origin, history and development of the breeds, market classifications are defined; and in the study of swine, the influence of various feeds and of different methods of management as affecting types is discussed. One afternoon each week is devoted to judging the different breeds. For Agricultural Sophomores.

Three exercises per week. 1st S.

2. Principles of Breeding.

Lectures and recitations upon the laws of heredity; value of selection in improving and maintaining a high standard of excellence in farm stock; variation, cause and extent; methods of breeding, including discussion of inbreeding, crossing and grading, and practice in tracing pedigrees. Elective for Agricultural Seniors.

Two exercises per week. 2d S.

3. Feeds and Feeding.

Lectures and recitations upon the laws of nutrition; composition and digestibility of feed stuffs; influence of feed on the animal body, preservation of coarse fodders; a study of leading cereals and by-products; feeding standards. Practice will be given in computing and compounding rations for various purposes. For Agricultural Juniors.

Three exercises per week. 2d S.

4. Veterinary Science.

Lectures and recitations upon the anatomy and physiology of the animal body; diseases and ailments; simple farm medicines and methods of administering; holding a post-mortem; infectious and contagious diseases affecting farm animals and methods of treatment; care of breeding animals with treatment of diseases and accidents incident to the parturient state. Elective for Agricultural Juniors.

Three exercises per week. 2d S.

5. Poultry.

Lectures and recitations upon the different classes and breeds of poultry; breeding and feeding; location and building of poultry houses; a study of incubators and brooders; methods of preventing disease. Practice will be given in scoring. Elective for Agricultural Juniors.

Two exercises per week. 1st S.

6. Advanced Live Stock.

This course is designed especially for those students who have shown proficiency in the previous courses relating to live stock. Students are given an opportunity to perform original work in investigating special problems concerning the breeds and their management. Elective for Agricultural Juniors.

Three exercises per week. 2d S.

7. Live Stock Management.

A study of the general management and care of horses, cattle, sheep and swine; fitting for market and exhibition; approved methods of

stabling; sanitation; maintaining health and vigor in live stock. Elective for Agricultural Seniors or Juniors.

Three exercises per week. 1st S.

BOTANY.

PROF. BROOKS, MISS BLACK.

1. General Botany. Prof. Brooks, Miss Black.

Lectures and laboratory work on the fundamental principles of plant physiology, followed by the study of a series of representative cryptogams. For Agricultural Sophomores, elective for Arts and Science Freshmen and Sophomores.

Three exercises per week. 1st S.

2. General Botany. Prof. Brooks, Miss Black.

This course continues the work on type forms begun in Course 1 and includes the study of vascular cryptogams, gymnosperms and angiosperms. The latter part of the semester will be devoted to a study of plant families and plant societies as represented in the local flora. Lectures, laboratory and field work. For Agricultural Sophomores, elective for Arts and Science Freshmen and Sophomores.

Open only to students who have completed Botany 1.

Three exercises per week. 2d S.

3. Plant Pathology. Prof. Brooks.

This course deals with the nature, cause and prevention of plant diseases and includes a systematic consideration of parasitic fungi. Lectures and laboratory work. For Agricultural Juniors, elective for Arts and Science Juniors and Seniors.

Open only to students who have completed Botany 2.

Three exercises per week. 1st S.

4. Mycology. Prof. Brooks.

A study of representative groups of fungi; culture methods and pathological work with fungous diseases. Lectures, laboratory and field work. Elective for Agricultural Juniors and Arts and Science Juniors and Seniors.

Open only to students who have completed Botany 2.

Three exercises per week. 2d S.

5. Plant Physiology. Prof. Brooks.

Lectures and experimental work on absorption, nutrition, growth, respiration and irritability. Elective for Agricultural and Arts and Science Juniors and Seniors.

Open only to students who have completed Botany 2.

Three exercises per week. 2d S.

6. Plant Histology. Miss Black.

A minute study of plant cells and plant tissues, starches, aleurones and other cell contents. Lectures and laboratory work. Elective for Arts and Science Juniors and Seniors and Agricultural Seniors.

Open only to students who have completed Botany 2.

Three exercises per week. 1st S.

7. Advanced Botany.

Opportunity to do original work along special lines will be offered to students who have shown special ability in the preceding courses.

Three exercises per week. 1st S.

8. Advanced Botany.

Continuation of Botany 7.

Three exercises per week. 2d S.

9. Systematic Botany. Miss Black.

Lectures and laboratory work on the classification of plants with special reference to those of New England. Elective for Agricultural and Arts and Science Juniors and Seniors.

Open only to students who have completed Botany 2.

Three exercises per week. 1st S.

10. Bacteriology. Prof. Brooks, Miss Black.

A study of the morphology and classification of bacteria, of culture methods, and of the relation of bacteria to such processes as decomposition, fermentation and digestion and to the production of disease. Elective for Agricultural and Arts and Science Juniors and Seniors.

Open only to students who have completed Botany 1.

Three exercises per week. 2d S.

CHEMISTRY.

PROF. PARSONS, ASSOC. PROF. JAMES, MR. PRATT, MR. KATZ.

1. Inorganic Chemistry.

Lectures and recitations on general and theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solution of chemical problems will be required. For Agricultural and Engineering Freshmen, elective for Arts and Science Freshmen.

Three exercises per week. 1st S.

2. Inorganic Chemistry.

Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc.

Open only to students who have completed Chemistry 1.

Two exercises per week. 2d S.

3. Elementary Physical Chemistry.

A short elementary course of ten lectures on the Dissociation Theory and its application; the Mass Law, etc. To accompany Chemistry 2 and 4.

Elective by special arrangement.

4. Qualitative Analysis.

Chemistry 4 consists of laboratory practice, with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases and to keep a full set of notes. He will have practice in the writing of reactions and will fill out numerous slips containing questions bearing upon his work. For Chemical Freshmen, Electrical and Mechanical Freshmen (Division 1), Agricultural Sophomores and Electrical and Mechanical Sophomores (Division 2); elective for Arts and Science Sophomores and Juniors.

Open only to students who have completed Chemistry 1.

Freshman Year. First nine weeks. 2d S.

Sophomore and Junior Years. 1st S.

Fifty-one exercises.

5. Qualitative Analysis.

A short advanced course for Chemical Sophomores on insoluble substances and the rarer elements, to precede Chemistry 10. First five weeks.

Twenty-five exercises. 1st S.

6. Organic Chemistry.

Lectures and recitations. A study of the chemistry of the carbon compounds. For Chemical Sophomores, elective for Arts and Science students.

Open only to students who have completed Chemistry 1 and 2.

Three exercises per week. 2d S.

7. Physiological Chemistry.

Lectures and recitations on the composition and nutrition of plants and animals. For Chemical and Agricultural Juniors, elective for Art and Science students.

Open only to students who have completed Chemistry 6 or 25.

Two exercises per week. 1st S.

8. Organic Chemical Laboratory.

The course consists mainly of laboratory practice in preparing and purifying organic compounds and a study of qualitative organic reactions and analyses. Lectures and recitations will be held from time to time in connection with the practice. For Chemical Juniors, elective for Arts and Science students.

Open only to students who have completed Chemistry 6.

Three exercises per week. 1st S.

10. Quantitative Analysis.

A preliminary course in quantitative analysis to familiarize the student with the general methods of chemical manipulation and analysis. For Chemical Sophomores. Elective in the Arts and Science Course in Sophomore, Junior and Senior Years, provided laboratory facilities permit. Last twelve weeks.

Open only to students who have completed Chemistry 4.

Five exercises per week. 1st S.

11. Quantitative Analysis.

A continuation of Chemistry 10. For Chemical Sophomores.

Six exercises per week. 2d S.

12. Advanced Quantitative Analysis.

Chemistry 12 is arranged for students of the Chemical Courses, and is intended to fit them for work in the laboratories of agricultural experiment stations, fertilizer works, iron works, sugar refineries, etc., and for the duties of the public analyst. This course will be made to fit the end which each has in view, and will be largely an individual one. For those students desiring to specialize in agricultural and food chemistry the analysis made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, foodstuffs, sugars, etc. For the student wishing to enter metallurgical works, the analyses will be in the main upon iron and steel and other metals, ores, limestones, slags, alloys, fuels, etc. As a preparation for the study of medicine, work will be done on poisons, foods, drugs, urine, etc. Other lines will be arranged to meet the wants of the individual student. Each student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary and industrial chemistry, in order to lay a foundation for any future work which may be required of him. A short course in gas and oil analysis will also be provided. For Chemical Juniors.

Open only to students who have completed Chemistry 11.

Four exercises per week. 1st S.

13. Advanced Quantitative Analysis.

A continuation of Chemistry 12. For Chemical Juniors.

Four exercises per week. 2d S.

14. Industrial Chemistry.

Chemistry 14 consists of lectures on chemical manufactures, such as sugar, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints, dyes, soaps, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern views, and trips to the leading New England cities to examine important chemical manufactures will be taken as far as practicable. For Chemical Juniors or Seniors.

Open only to students who have completed Chemistry 1 and 2.

Two exercises per week. 2d S.

15. Metallurgy.

Chemistry 15 consists of lectures describing the processes employed in the smelting of ores of iron, lead, copper, zinc, silver, gold, etc., and upon the methods used in refining these metals. The lectures are illustrated by stereopticon and by specimens of metallurgical products. For Chemical Juniors or Seniors.

Open only to students who have completed Chemistry 1 and 2.

One exercise per week. 2d S.

Chemistry 14 and 15 are given in alternate years with Chemistry 22.

16. Assaying.

A course in the fire assay of gold and silver ores. For Chemical Seniors.

Open only to students who have taken Chemistry 10 or 18.

Seventeen exercises. 1st S.

17. Agricultural Analysis.

This course is arranged especially for students of the Agricultural Course, and consists mainly of the quantitative determination of the constituents of milk, butter, fertilizers, grain, etc. Elective, subject to desk room in laboratory.

Open only to students who have completed creditably the work of Chemistry 1, 2 and 4.

Three exercises per week.

18. Metallurgical Analysis.

This course is arranged for the students of the Engineering Departments who may elect the same, and consists mainly of the quantitative determination of ores, slags, metals, alloys, fuels, etc. Elective, subject to desk room in the laboratory.

Open only to students who have completed creditably the work of Chemistry 1, 2 and 4 or 5.

Three exercises per week.

19. Chemical Journals, Methods, etc.

The work consists of the study of current chemical literature, mainly in the German language, with recitations twice a week. Each student will be expected to prepare abstracts, reports, criticisms, etc., upon assigned articles. For Chemical Juniors.

Open to students who have begun Chemistry 11.

Two exercises per week. 1st S.

20. Chemical Journals.

A continuation of Chemistry 19. For Chemical Juniors.

Two exercises per week. 2d S.

21. Physical Chemistry, Lectures.

The work consists of advanced study of chemical theory. Practical experiments will be performed, with the aid of the student, in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, ionization, electrolysis, molecular and atomic volume, thermo chemistry, equilibrium, the phase rule, etc., will take up much of the time. For Chemical Juniors or Seniors. Course 21 comes in alternate years.

Open only to students who have completed Chemistry 1, 2 and 10.

Two exercises per week. 1st S.

22. Physical and Electro Chemistry, Lectures.

A continuation of Chemistry 21, and is given in alternate years with Chemistry 14 and 15. For Chemical Juniors or Seniors.

Three exercises per week. 2d S.

23. Chemical Research.

Especially arranged for students of the Chemical Engineering Course. May merge at any time into 24 and will usually do so about the middle of the first semester. For Chemical Seniors.

Eight exercises per week. 1st S.

24. Thesis.

The work of the last semester of the Chemical Engineering Course is given up to the special study of some selected subject in any branch of chemical science and the student is required to present a thesis showing him to be capable of independence of thought and manipulation. For Chemical Seniors.

Eight exercises per week. 2d S.

25. Organic Chemistry.

A brief introductory course in organic chemistry specially arranged for Agricultural students. For Agricultural Sophomores, elective for Arts and Science students.

Open only to students who have completed Chemistry 1.

One exercise per week. 2d S.

DAIRYING.

PROF. RASMUSSEN.

1. Farm Dairying.

Lectures and recitations on the Babcock test, on tests for determining the acidity of milk and on the use of the lactometer in detecting adulterations in milk. Includes also a study of the composition, separation and churning of milk. The laboratory work will be made applicable to farm conditions. For Agricultural Juniors.

Four exercises per week. 1st S.

2. Advanced Butter Making.

A study of the secretion, chemical and physical properties of milk, pasteurization, cream ripening, commercial starters, the churning, marketing and scoring of butter. The laboratory work will be made applicable to factory conditions. Elective for Agricultural Seniors.

Open only to students who have completed Dairying 1.

Three exercises per week. 2d S.

3. Technology of Milk.

Consists of a study of the uses of milk and its by-products outside the scope of butter and cheese making; the production and preparation of sanitary, certified, modified milk; the making of condensed milk and koumiss; the manufacture of casein and milk sugar, and the preparation of ices and ice cream. Elective for Agricultural Juniors and Seniors.

Open only to students who have completed Dairying 1.

Two exercises per week. 2d S.

4. Factory Management.

This course is designed for students wishing to fit themselves for managers of large factories and other dairy establishments. It consists of a study of the organization, location, construction, and operation of factories; special problems connected with the manufacturing of butter; dairy conditions and methods in foreign countries. Elective for Agricultural Seniors.

Open only to students who have completed Dairying 2.

Three exercises per week. 1st S.

5. Dairy Bacteriology and Cheese Making.

Lectures and demonstrations on the function of bacteria and the application of bacteriological principles to dairy work.

A course of lectures will be given covering the details of the manufacturing, curing and marketing of the more important kinds of cheese. Elective for Agricultural Seniors.

Two exercises per week. 2d S.

6. Dairy Research.

A study of the work of the experiment stations and other dairy literature. Elective for Agricultural Seniors.

Open only to students who have completed Dairying 1, 2 or 3.

Two exercises per week. 1st S.

***DRAWING.**

PROF. PUTNAM, MR. LATON.

These courses are of an industrial nature and include both free-hand and mathematical branches of this subject.

1a. Industrial Drawing. Prof. Putnam, Mr. Laton.

Free-hand lettering, free-hand drawing, use of instruments, mathematical drawing, inking, tinting, tracing and blue-prints.

Systems of object drawing; orthographic projection; isometric drawing; mechanical perspective, shades and shadows. For Engineering Freshmen.

Two and one half exercises per week. 1st S.

1b. Industrial Drawing. Prof. Putnam, Mr. Laton.

Same as Course 1a. For Agricultural Freshmen, elective for Arts and Science Freshmen.

Two exercises per week. 1st S.

*Students are advised not to purchase drawing instruments or supplies before consultation with the drawing instructor.

2a. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Recitations and drawing exercises in the solution of geometrical problems by orthographic projection. For Engineering Freshmen (Division 1).

Open only to students who have completed Drawing 1a and Mathematics 2.

Three exercises per week. 2d S.

2b. Descriptive Geometry.

Same as Drawing 2a. For Engineering Freshmen (Division 2). First nine weeks.

Open only to students who have completed Drawing 1a and Mathematics 2.

Two exercises per week. 2d S.

3. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Continuation of Drawing 2b. Practical problems on bridge beams, rafters, piping, etc.

For Engineering Freshmen (Division 2). Last eight weeks.

Two exercises per week. 2d S.

4. Design of Farm Buildings. Prof. Putnam.

This course consists of drawings of floor plans and framing details for farm buildings in preparation for the Rural Architectural Course of the Senior Year. For Agricultural Freshmen.

Open only to students who have completed Drawing 1b.

Two exercises per week. 2d S.

5. Descriptive Geometry. Prof. Putnam, Mr. Laton.

Same as Course 3. For Electrical and Mechanical Sophomores (Division 1). First eight weeks.

Open only to students who have completed Drawing 1a and 2a or 2b and Mathematics 2.

Two and one half exercises per week. 1st S.

6a. Elementary Machine Drawing. Mr. Laton.

Mechanism drawing; detail and assembly drawing of simple machines. For Electrical and Mechanical Sophomores (Division 1). Last nine weeks.

Open only to students who have completed Drawing 1a to 3 and Mathematics 2.

Two exercises per week. 1st S.

6b. Elementary Machine Drawing. Mr. Laton.

Same as Course 6a. For Electrical and Mechanical Sophomores (Division 2).

Open only to students who have completed Drawing 1a to 3 and Mathematics 2.

Two exercises per week. 1st S.

7. Elementary Machine Drawing and Free-Hand Drawing of Chemical Apparatus. Mr. Laton.

For Chemical Sophomores.

Open only to students who have completed Drawing 1a to 3.

Two exercises per week. 1st S.

8. Machine Drawing. Mr. Laton.

Working drawings of various machines and machine tools including steam boiler and engine details. For Electrical and Mechanical Sophomores.

Open only to students who have completed Drawing 6.

Two and one half exercises per week. 2d S.

NOTE—Alternating with shop work on Wednesdays.

9. Free-Hand Drawing. Prof. Putnam.

Light and shade drawing from casts and still life. Charcoal work. Elective for Arts and Science Sophomores.

Two exercises per week. 1st S.

10. Free-Hand Drawing.

Wash drawings and water color work; pencil sketching from nature and exercises in perspective. Elective for Arts and Science Sophomores.

Two exercises per week. 2d S.

11. Architectural Drawing.

Studies of architectural detail and historic ornament. Elective for Arts and Science Juniors.

Three exercises per week. 1st S.

12. Architectural Drawing.

Continuation of Drawing 11. The design of a building with details of ornament. Elective for Arts and Science Juniors.

Three exercises per week. 2d S.

13. Advanced Architectural Drawing.

Elective for Arts and Science Seniors.

Open only to students who have completed Drawing 11 and 12.

Three exercises per week. 1st S.

14. Advanced Architectural Drawing.

Elective for Arts and Science Seniors.

Open only to students who have completed Drawing 11, 12 and 13.

Two exercises per week. 2d S.

16. Free-Hand or Charcoal Drawing.

Elective for Arts and Science Freshmen. Last eight weeks.

Four exercises per week. 2d S.

ELECTRICAL ENGINEERING.

PROF. HEWITT, MR. HITCHCOCK.

1. Dynamo Electric Machinery. Prof. Hewitt.

The course begins with a general study of both direct and alternating current dynamos and motors, including elementary theory, with a large number of practical problems to illustrate application of same. For Electrical and Mechanical Juniors.

Open only to students who have completed Physics 2 and Mathematics 6.

Three exercises per week. 1st S.

2. Dynamo Electric Machinery. Mr. Hitchcock.

This course is a continuation of Course 1. It takes up the theory of armature winding and construction; the general points of design; a study of various types of electrical machinery; laboratory methods of measurements, the various electrical quantities such as electromotive force, current, resistance, permeability of iron, the use of standard instruments; the laws of electrolysis; thermo-electric currents, etc. For Electrical and Mechanical Juniors.

Open only to students who have completed Electrical Engineering 1.

Three exercises per week. 2d S.

4. Electrical Laboratory. Prof. Hewitt, Mr. Hitchcock.

This course consists of the measurement of resistances, inductances, capacities; the permeabilities of samples of iron; the determination of the candle power of incandescent and arc lamps; the calibration of resistances; the measurement of power in alternating current circuits; alternator characteristics; the testing of synchronous and polyphase motors; transformers; power measurements by wattmeters and a general study of polyphase machinery. For Electrical Juniors.

Open only to students who have completed Electrical Engineering 1.

Three exercises per week. 2d S.

6. Telegraph and Telephone. Mr. Hitchcock.

This course consists in a careful study of the elementary electrical principles of telegraphy; the construction and connection of lines, repeaters; high speed telegraphy; simple and multiplex telegraphy; submarine signalling; automatic devices, general electric signalling for purposes of alarms, railroads, etc., and wireless telegraphy; also lectures and recitations on the acoustic and electrical principles of telephony; the different forms of calling and receiving apparatus and accessories and simple circuits. The latter part of the course is devoted to the consideration of the more complex forms of circuits, exchange switchboards, transfer systems and the construction of overhead and underground systems. Elective for Electrical Juniors.

One exercise per week. 2d S.

11. Electrical Engineering Practice. Mr. Hitchcock.

This course takes up the study of the properties of periodic curves; the effects of self-induction and capacity and a more detailed study of dynamos, motors, transformers and other electrical apparatus. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 2.

Four exercises per week. 1st S.

12. Electrical Engineering Practice. Prof. Hewitt.

This course is a continuation and completion of Electrical Engineering 11. It takes up more advanced theory and general practice. It also includes a thorough study of High Tension Power Transmission and deals with the selection of apparatus for generating stations and the distributing systems. A study will be made of the proper combinations of apparatus to correctly represent standard theory and practice. The design of the transmission line and of the distributing systems will be considered. The application of the theory will be brought out in lectures and established with a large number of practical problems. A careful study will be given to the various methods used for lightning protection. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 11.

Four exercises per week. 2d S.

13. Electric Railways. Mr. Hitchcock.

In this course will be considered the principles which govern the application of electric motors to railway service, and the location of power and sub-stations as determined by economic questions. Following this will be given the practical points involved in the selection and operation of railway equipment including power and sub-station equipment, line and track, railway motors and car equipment, storage batteries, etc. The problem of utilizing electric energy in mining will also be considered. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 2.

Two exercises per week. 1st S.

15. Electrical Laboratory. Prof. Hewitt, Mr. Hitchcock.

This course is a continuation of Course 4 covering a more advanced series of experiments. A written report will be required for which one additional credit hour will be given. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 4.

Four exercises per week. 1st S.

16. Electrical Laboratory. Prof. Hewitt, Mr. Hitchcock.

This course is a continuation of Course 15 and takes up experiments of a more advanced nature. A written report will be required for which one additional credit hour will be given. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 15.

Four exercises per week. 2d S.

17. Electrical Laboratory. Prof. Hewitt, Mr. Hitchcock.

This course is similar to Course 4, only a specially arranged series of experiments is provided adapted to the needs of students in the Mechanical Engineering Course. For Mechanical Juniors.

Open only to students who have completed Electrical Engineering 2.

One exercise per week. 2d S.

18. Thesis. Prof. Hewitt, Mr. Hitchcock.

A deposit of fifteen dollars to cover any damage done to instruments or apparatus, etc., is required in this course. Any unexpended balance is refunded at the close of the college year. Where apparatus is constructed as a part of a thesis, it shall remain the property of the department. For Electrical Seniors.

Three exercises per week. 2d S.

19. Dynamo Electric Machinery. Mr. Hitchcock.

This course is a continuation of Electrical Engineering 2, but arranged to meet the requirements of students in Mechanical Engineering. This course is not as advanced as Electrical Engineering 11, but covers the same subjects in a more elementary manner. For Mechanical Seniors.

Open only to students who have completed Electrical Engineering 2.

Three exercises per week. 1st S.

20. Dynamo Electric Machinery. Prof. Hewitt.

This course is a completion of Electric Engineering 19. For Mechanical Seniors.

Open only to students who have completed Electrical Engineering 19.

Two exercises per week. 2d S.

21. Industrial Electricity. Prof. Hewitt.

This course consists of a careful study of the principles and methods employed in electrical measurements, such as resistance of wire and batteries, current measurement by ammeters and electrolysis, the use of electrical measuring instruments and a series of laboratory experiments specially arranged to meet the requirements of Chemical Engineers. A brief study will be made of the dynamo, motor, transformer, primary and secondary batteries, arc and incandescent lamps and the general principles of electrical distribution. Experiments in electrolysis, electrical furnaces, reduction of metals, etc., are provided. For Chemical Seniors.

Three exercises per week. 1st S.

22. Industrial Electricity. Prof. Hewitt.

This course is a continuation of Electrical Engineering 21, but more advanced in nature. For Chemical Seniors.

Open only to students who have completed Electrical Engineering 21.

Three exercises per week. 2d S.

23. Contracts and Specifications. Prof. Hewitt.

The laws and forms of engineering contracts; standard specifications for engineering materials and apparatus. For Mechanical Seniors, elective for Electrical Seniors. *One exercise per week. 1st S.*

24. Electrical Laboratory. Prof. Hewitt, Mr. Hitchcock.

This course is a continuation of Electrical Engineering 17 and takes up experiments of a more advanced nature. A written report will be required for which one additional credit hour will be given. For Mechanical Seniors.

Open only to students who have completed Electrical Engineering 17.

Two exercises per week. 1st S.

25. Design of Electrical Machinery. Mr. Hitchcock.

This course covers a study of the design of the more important electrical machines, and includes the calculation of the dimensions of the machine, both electrical and mechanical, and the predetermination of its performance from the dimensions. For Electrical Seniors.

Open only to students who have completed Electrical Engineering 11.

Three exercises per week. 2d S.

ENGLISH.

PROF. GROVES, PROF. SCOTT, ASST. PROF. DAVID.

1. English Composition and Rhetoric. Prof. David.

The theory of composition, theme writing, book reviews and an introduction to the principles of literary criticism. For all Freshmen.

Three exercises per week. 1st S.

2. English Composition and Rhetoric. Prof. David.

This is a continuation of English 1.

Open only to students who have completed English 1.

Three exercises per week. 2d S.

3. Advanced English Composition and Criticism. Prof. David.

(a) Composition. The four forms of composition (narration, description, exposition and argumentation) will be taken up and practice given in each form. There will also be daily and weekly themes based on topics of the day (editorials), and on required readings. (Gardner's Forms of Prose Literature.)

(b) Criticism. The history of criticism will be studied briefly, each student having one novel and one poet to criticise. (Winchester's Principles of Literary Criticism.) Elective for Arts and Science Sophomores and Juniors.

Three exercises per week. 1st S.

4. The English Drama. Prof. David.

Lectures on the English drama, with required readings in Shakespeare, Sheridan and Goldsmith. There will also be recitations and discussions. Elective for Arts and Science Juniors and Seniors.

Three exercises per week. 2d S.

5. The English Novel. Prof. Groves.

A seminar study of the development of the English novel. Considerable reading is required in this course. Elective for Arts and Science Juniors and Seniors.

Open only to students who have completed English 1 and 2.

Three exercises per week. 1st S.

6. Argumentation. Prof. Groves.

The principles and forms of argumentative composition, brief drawing and forensics. Practice in oratorical argumentation. Laycock and Scales' Argumentation and Debate. For Agricultural Seniors, elective for Chemical Seniors and Arts and Science Sophomores and Juniors.

Three exercises per week. 2d S.

7. American Literature. Prof. Scott.

Lectures with an extensive course of reading. Elective for Arts and Science and Agricultural Seniors.

Four exercises per week. 2d S.

8. Modern English Poetry.

A critical study is made of the poetry of Wordsworth, Tennyson and Browning, and of the social conditions that influenced the poets. Considerable reading is required. Elective for Arts and Science students.

Open only to students who have completed English 1 and 2.

Three exercises per week. 2d S.

FORESTRY.

PROF. PICKETT.

1. Principles of Forestry.

This course is intended to give the student a knowledge of the various methods of forestry management in Europe and America. The text and lectures will cover the use of trees for shelter, shade and ornament, and their propagation; the value of trees for timber; how to improve existing woodlands; the influence of forests upon soils, crops and climate; the establishment and management of plantations and forest trees. For Agricultural Juniors.

Three exercises per week. 1st S.

FRENCH.

PROF. WHORISKEY, MR. TAISNE.

1. Elementary French. Mr. Taisne.

Essentials of French grammar and reading, with practice in speaking and writing French. Dictation. For Freshmen offering German for admission. *Three exercises per week. 1st S.*

2. Elementary French. Mr. Taisne.

Continuation of French 1. Reading of Modern French Prose; translation from English into French of connected narrative. Dictation. For Freshmen offering German for admission. *Three exercises per week. 2d S.*

3. French Prose. Mr. Taisne.

Reading and translation of French Prose, Composition, Poems. Elective for Arts and Science Students. *Three exercises per week. 1st S.*

4. French Prose, History and Travel. Mr. Taisne.

Reading and translation. Composition based on some book read in class. Elective for Arts and Science Students. *Three exercises per week. 2d S.*

†5. French Prose of Nineteenth Century. Mr. Taisne.

Selections from Hugo, Balzac, Sand, Dumas père, Daudet will be read. Sight reading. Elective for Arts and Science Students. *Three exercises per week. 1st S.*

†6. French Prose of Nineteenth Century. Mr. Taisne.

Continuation of French 5. Elective for Arts and Science Students. *Three exercises per week. 2d S.*

†7. French Literature in the Seventeenth Century.

Corneille, Racine, Molière, Bossuet, Mme. de Sévigné, La Fontaine. Elective for Arts and Science Students. *Three exercises per week. 1st S.*

†8. French Literature in the Seventeenth Century.

Continuation of French 7. Elective for Arts and Science Students. *Three exercises per week. 2d S.*

†9. French Composition.

Elective for Arts and Science Students. *One and one half exercises per week. 1st S.*

†10. French Composition.

Elective for Arts and Science Students. *One and one half exercises per week. 2d S.*

†French 5 and 6 are to be given in 1910-1911 and in alternate years with 7 and 8.

‡During the year 1910-1911, French 9 and 10 will not be given.

GEOLOGY.

PROF. PARSONS, PROF. JACKSON.

1. Mineralogy. Prof. Parsons.

A short course in blowpipe analysis, followed by laboratory practice in the determination and study of minerals, with special reference to their economic value. For Chemical Juniors, elective for Agricultural and Arts and Science Juniors.

Open only to students who have completed Chemistry 1 and 2.

Two exercises per week. 2d S.

2. Elementary Geology. Miss Kephart.

A brief course in the elements of geology. Special attention is given to local geology and excursions are made to various points of interest in the vicinity. For Agricultural Juniors, elective for Arts and Science Juniors and Seniors.

Three exercises per week. 2d S.

3. Historical Geology. Prof. Jackson.

The development of the continents of the earth and the evolution and distribution of the animal and plant forms from the earliest times to the present. Recitations, lectures and laboratory work. Elective for Agricultural and Arts and Science Seniors.

Open only to students who have completed Zoölogy 1 and 2 and Geology 2.

Three exercises per week. 1st S.

GERMAN.

PROF. WHORISKEY, ASST. PROF. DAVID.

1. Elementary German. Prof. Whoriskey, Prof. David.

German Grammar. Declension of articles, nouns, adjectives and pronouns; verbs, weak and strong. Reading of simple stories; conversation Dictation. For Freshmen offering French for admission.

Three exercises per week. 1st S.

2. Elementary German. Prof. Whoriskey, Prof. David.

Continuation of German 1. Verbs, modal auxiliaries, essentials of syntax. Composition, reading and translation; poems. Dictation. For Freshmen offering French for admission.

Three exercises per week. 2d S.

3. German Prose of the Nineteenth Century. Prof. Whoriskey, Prof. David.

Reading and translation. Composition based on some book read in class. For Engineering Sophomores, elective for Agricultural and Arts and Science Sophomores.

Three exercises per week. 1st S.

4. Scientific German. Prof. Whoriskey, Prof. David.

Reading and Translation. Composition. For Engineering Sophomores, elective for Agricultural and Arts and Science Sophomores.

Three exercises per week. 2d S.

†5. Goethe. Prof. Whoriskey.

His Life and Works. Elective for Arts and Science Students.

Three exercises per week. 1st S.

†6. Goethe. Prof. Whoriskey.

Continuation of German 5. Elective for Arts and Science Students.

Three exercises per week. 2d S.

†7. Schiller. Prof. Whoriskey.

Life and Works. Elective for Arts and Science Students.

Three exercises per week. 1st S.

†8. Schiller.

Continuation of German 7. Elective for Arts and Science Students.

Three exercises per week. 2d S.

9. German Composition. Prof. Whoriskey.

Elective for Arts and Science Students.

Two exercises per week. 1st S.

10. German Composition. Prof. Whoriskey.

Elective for Arts and Science Students.

Two exercises per week. 2d S.

†11. German Composition.

Elective for Arts and Science Students.

Three exercises per week. 1st S.

†12. German Composition.

Elective for Arts and Science Students.

Three exercises per week. 2d S.

†13. Sudermann. Prof. Whoriskey.

His Life and Principal Works. Elective for Arts and Science Students.

Three exercises per week. 1st S.

†14. Sudermann and His Contemporaries.

Continuation of German 13. Elective for Arts and Science Students.

Three exercises per week. 2d S.

†German 5 and 6 are to be given in 1911-1912 and in alternate years with 7 and 8.
In 1910-1911, German 13 and 14 will be given instead of German 7 and 8.

†German 11 and 12 will not be given during the year 1910-1911.

HISTORY.

PROF. SCOTT.

In the courses in History an important place is given to historical reading carried on in the reference room. In some cases a considerable part of the work is written.

History 1 and 2 and History 3 and 4 are given in alternate years. History 1 and 2 are offered in 1910-'11.

1. History of Europe from 476 to 1492.

Recitations and collateral reading. For Arts and Science Freshmen, elective for Arts and Science Sophomores.

Three exercises per week. 1st S.

2. History of Europe from 1492 to 1715.

Recitations and collateral reading. For Arts and Science Freshmen, elective for Arts and Science Sophomores.

Three exercises per week. 2d S.

3. History of Europe from 1715 to 1815.

Recitations and collateral reading. For Arts and Science Freshmen, elective for Arts and Science Sophomores.

Three exercises per week. 1st S.

4. History of Europe since 1815.

Recitations and collateral reading. For Arts and Science Freshmen, elective for Arts and Science Sophomores.

Three exercises per week. 2d S.

5. American History to 1789.

For Agricultural Seniors, elective for Arts and Science Juniors.

Three exercises per week. 1st S.

6. Political and Constitutional History of the United States from 1789 to 1850.

For Agricultural Seniors, elective for Arts and Science Juniors.

Three exercises per week. 2d S.

7. Political and Constitutional History of the United States since 1850.

Elective for Arts and Science Seniors.

Three exercises per week. 1st S.

HORTICULTURE.

PROF. PICKETT, MR. LUMSDEN, MR. WOLFF, MR. GARDNER.

With the rapid development of agricultural education, the science of horticulture has become more clearly defined. Horticulture is subdivided into five classes, viz.: (1) Pomology, or Fruit Growing; (2) Olericulture, or Vegetable Gardening; (3) Floriculture, or Flower Growing; (4) Landscape Gardening; and (5) Nursery Practice.

1. Principles of Horticulture. Prof. Pickett.

This course is elementary, and comprises the fundamentals of horticulture, emphasizing the sciences upon which horticulture rests and the scope and importance of its field. For Agricultural Freshmen. Last nine weeks. *Three exercises per week. 1st S.*

2. Olericulture. Mr. Gardner.

Lectures and recitations upon the culture, classification and identification of vegetables. The storing and marketing of vegetables are also considered. For Agricultural Freshmen.

Two exercises per week. 2d S.

3. Practical Pomology. Mr. Wolff.

Dealing with problems of fruit growing such as location, choice of site, kind and adaptability of soil for fruit growing, soil management, planting of orchards, pruning, sprays and spraying, thinning, harvesting and marketing. Lectures and laboratory work. For Agricultural Sophomores.

Three exercises per week. 2d S.

4. Greenhouse Construction and Management. Mr. Lumsden.

Lectures, recitations and laboratory work. This course aims to familiarize the student with modern methods of greenhouse work and the more important plants grown under glass. Soils, varieties, culture, marketing, enemies, etc., are studied. Each student is required to do practical work in propagating, potting, watering, ventilating, etc. A study is made of the history and development of different types of greenhouses, including methods of heating and general management. Elective for Agricultural Juniors.

Two exercises per week. 1st S.

5. Landscape Gardening. Mr. Lumsden.

An elementary course in ornamental and landscape gardening with special reference to the beautifying of home surroundings. Elective for Agricultural Juniors.

Two exercises per week. 2d S.

6. Vegetable Gardening under Glass. Mr. Lumsden.

A study of the methods of growing market vegetables in greenhouses. Lectures and practical exercises in the greenhouse. Elective for Agricultural Seniors.

Two exercises per week. 2d S.

7. Nursery Management. Mr. Wolff.

A study of the methods of propagation and the care of trees, shrubs and perennial plants in the nursery. Lectures, reference readings and practice. Elective for Agricultural Juniors.

Three exercises per week. 2d S.

8. Viticulture and Small Fruit Culture. Mr. Wolff.

A comprehensive study of the grape and small fruits such as the strawberry, raspberry, blackberry, currant and gooseberry. Each fruit is

studied with reference to all the essential points such as history, classification, propagation, planting, pruning, enemies, diseases, picking and marketing. Elective for Agricultural Juniors.

Two exercises per week. 1st S.

9. Commercial Floriculture. Mr. Lumsden.

A study of the growing of cut flowers and decorative plants. Lectures and practical exercises in the greenhouse. Elective for Agricultural Seniors.

Three exercises per week. 1st S.

10. Evolution and Improvement of Plants. Prof. Pickett.

The application of the principles of evolution to the improvement of plants. Variation, selection and heredity as applied to the problems of plant breeding in agricultural practice. Elective for Agricultural Seniors.

Two exercises per week. 2d S.

11. Systematic Pomology and Commercial Orcharding. Mr. Wolff.

The first eight weeks of the semester are devoted to a study of the leading varieties of fruits and their adaptations, with special reference to New England conditions. During the remainder of the semester this course deals with the management of commercial orchards, problems of marketing, packing, transportation and coöperation. Lectures, reference reading and laboratory work. Elective for Agricultural Seniors.

Four exercises per week. 1st S.

12. Advanced Landscape Gardening. Mr. Lumsden.

A study of the principles and composition of landscape gardening as applied to public and private grounds. Lectures, reference readings and plans. Elective for Agricultural Seniors.

Open only to students who have completed Horticulture 5.

Two exercises per week. 2d S.

13. Advanced Vegetable Gardening. Mr. Gardner.

The management of commercial vegetable gardening establishments; rotation of crops, manures, markets and special crops. Elective for Agricultural Seniors.

Two exercises per week. 2d S.

14. Cold Storage and Horticultural Manufactures. Prof. Pickett.

This course embraces a study of the methods and principles involved in the building and refrigeration of fruit storage houses and in the manufacture of fruit and vegetable products. The efficiency of various refrigerants and insulating systems is discussed in relation to cold storage. The processes of canning and evaporating fruits and vegetables, the manufacture and bottling of fruit juices, and the relation of moulds, yeasts and bacteria to these processes are taught. Lectures, assigned reading and laboratory work. Elective for Agricultural Seniors.

Two exercises per week. 2d S.

LATIN.

1. Livy (book I); Pliny (Letters).

Elective for Arts and Science Freshmen. Open only to students who have offered Advanced Latin for entrance.

Three exercises per week. 1st S.

2. Terence (Andria and Phormio).

Continuation of Latin 1. Elective for Arts and Science Freshmen.

Three exercises per week. 2d S.

3. Tacitus (Annals).

Elective for Arts and Science Sophomores.

Three exercises per week. 1st S.

4. Horace (Odes and Epodes).

Continuation of Latin 3. Elective for Arts and Science Sophomores.

Three exercises per week. 2d S.

MACHINE DESIGN.

PROF. PUTNAM, MR. LATON.

1. Mechanism. Prof. Putnam.

The study of machine parts with respect to their forms, motions and modes of connection; the kinematics of fluids; the theory of the slide valve. For Electrical and Mechanical Sophomores.

Open only to students who have completed Mathematics 1 to 2.

Three exercises per week. 1st S.

2a. Mechanism. Prof. Putnam.

Continuation of Machine Design 1. For Electrical and Mechanical Sophomores.

Two exercises per week. 2d S.

2b. Elementary Machine Design.

For Electrical and Mechanical Sophomores.

One exercise per week. 2d S.

3. Theoretical Mechanics.

Composition and resolution of forces, conditions of equilibrium, center of gravity, with special attention to plane surfaces, friction, the simple machines, laws of motion, motion in a resisting medium, constrained motion, impact, work and energy, moment of inertia, particularly of plane surfaces; also strength of materials. For Engineering Juniors.

Open only to students who have completed Mathematics 1 to 7 inclusive and Physics 1.

Four exercises per week. 1st S.

4. Designing and Drawing. Prof. Putnam.

The application of Course 3 to practical problems worked out in the drafting room. For Electrical and Mechanical Juniors.

Open only to students who have completed Mathematics 1 to 7 inclusive, Physics 1 and Machine Design 1 and 2.

Three exercises per week. 1st S.

5. Theoretical Mechanics.

Continuation of Machine Design 3. For Engineering Juniors.

*Four exercises per week. 2d S.***6. Shop Machinery.** Prof. Putnam, Mr. Laton.The design of shop machinery of all kinds, except power plant machinery. For Mechanical Juniors. *Three exercises per week. 2d S.***MATHEMATICS.**

PROF. PETTEE, ASSOC. PROF. MOORE.

1. Algebra Completed. Prof. Pettee, Prof. Moore.

For all Freshmen.

*Four exercises per week. 1st S.***2. Solid Geometry with Advanced Course.** Prof. Moore.

For Engineering Freshmen entering without the subject, elective for Agricultural and Arts and Science Freshmen.

*Two exercises per week. 1st S.***3. Plane and Spherical Trigonometry.** Prof. Pettee, Prof. Moore.

For all Freshmen. First nine weeks.

*Four exercises per week. 2d S.***4. Surveying.** Prof. Pettee.

Recitations, field-work and plotting, including compass, transit, plane-table and level work. For Engineering and Agricultural Freshmen, elective for Arts and Science Freshmen. Last eight weeks.

*Four exercises per week. 2d S.***5. Analytical Geometry.** Prof. Pettee, Prof. Moore.

For Engineering Sophomores, elective for Arts and Science Sophomores.

*Five exercises per week. 1st S.***6. Differential and Integral Calculus.** Prof. Pettee, Prof. Moore.

For Engineering Sophomores, elective for Arts and Science Sophomores.

*Five exercises per week. 2d S.***7. Differential Equations.** Prof. Moore.

Elective for Arts and Science Juniors.

*Two exercises per week. 1st S.***8. Quaternions.** Prof. Moore.Elective for Arts and Science Juniors. *Two exercises per week. 2d S.***9. Astronomy.** Prof. Pettee.Elective for Arts and Science Seniors. *Two exercises per week. 2d S.*

***MECHANICAL ENGINEERING.**

PROF. CARDULLO, PROF. PUTNAM.

7. Thermodynamics. Prof. Cardullo.

Study of the thermodynamic properties of gases and vapors, and of the phenomena of operation of thermodynamic engines; analysis of the causes of energy losses and methods of minimization; interpretation of indicator and temperature-entropy diagrams; study of steam engines and turbines, boilers, gas engines and producers and refrigerating machinery. For Electrical and Mechanical Juniors and Chemical Seniors.

Open only to students who have completed Mathematics 6.

Three exercises per week. 1st S.

8. Thermodynamics. Prof. Cardullo.

Continuation of Mechanical Engineering 7. For Electrical and Mechanical Juniors.

Three exercises per week. 2d S.

9. Mechanical Laboratory. Prof. Cardullo.

Study of apparatus and methods of calibration used in engineering investigations; testing of iron, steel and wood; valve setting and indicator practice. For Electrical and Mechanical Juniors.

Open only to students who have completed or are taking Machine Design 3 and Mechanical Engineering 7.

Two exercises per week. 1st S.

10. Mechanical Laboratory. Prof. Cardullo.

Study of miscellaneous engineering materials and apparatus, and standard methods of testing; lubricants, cement, fuels, boilers, engines, pumps, power-plant appliances and supplies, etc. For Electrical and Mechanical Juniors.

Open only to students who have completed Mechanical Engineering 9.

**Two exercises per week. 2d S.*

11. Hydraulics. Prof. Cardullo.

A study of the principles and practice of hydraulic machinery and measurements. For Electrical and Mechanical Seniors.

Open only to students who have completed Machine Design 5.

Four exercises per week. 1st S.

12. Materials of Engineering. Prof. Cardullo.

A study of the properties, commercial forms, methods of preparation and use of engineering materials. For Electrical and Mechanical Seniors.

Two exercises per week. 1st S.

*A fee of two dollars and one-half per semester will be charged to students taking Mechanical Engineering laboratory work, to cover damage and breakage, the balance to be returned at the end of the semester.

13. Mechanical Laboratory. Prof. Cardullo.

A critical study and detailed analysis of the performance of engineering apparatus, particularly of steam and gas engines, hydraulic apparatus, etc. For Electrical and Mechanical Seniors. Three hours' credit is given for this course.

Open only to students who have completed Mechanical Engineering 10.

Two exercises per week. 1st S.

14. Mechanical Laboratory. Prof. Cardullo.

Continuation of Course 13. For Mechanical Seniors. Three hours' credit is given for this course.

Open only to students who have completed Mechanical Engineering 13.

Two exercises per week. 2d S.

15. Heat Engine Design. Prof. Cardullo.

Study of the structure and proportions of heat engines; design of valves and valve gears, governors, fly wheels and principal members of steam and gas engines and steam turbines. For Mechanical Seniors.

Five exercises per week. 1st S.

16. Shop Design and Equipment. Prof. Putnam.

A study of the proper choice and arrangement of tools, machinery and equipment of all kinds for shops and factories; the design of suitable buildings for housing the same and estimates of quantities of material and cost of construction. Particular attention will be given to textile mills and machine shops. For Mechanical Seniors.

Four exercises per week. 2d S.

17. Power Plant Design. Prof. Cardullo.

A study of different types of power plants, power plant apparatus and equipment and of controlling factors in the cost of power generation and distribution; the design of a power plant to meet given conditions. For Mechanical Seniors.

Two exercises per week. 2d S.

19. Economics of Engineering. Prof. Cardullo.

A discussion of the principles and practice of systems of shop organization and management, cost keeping, wage payment and methods of cost reduction; also a discussion of engineering finance, welfare work, labor conditions, factory laws, etc. For Electrical and Mechanical Seniors.

Three exercises per week. 2d S.

METEOROLOGY.**1. Meteorology.**

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes and methods of prediction of atmospheric changes. For Agricultural Seniors, elective for Arts and Science Seniors.

Two exercises per week. 1st S.

***MILITARY SCIENCE AND TACTICS.**

LIEUT. EDGERLY.

Unless excused by proper authority, all male students are required to complete three years' satisfactory work in Drill and two years' satisfactory work in theoretical Military Science.

DRILL.

Drill 1 to 8 inclusive includes practical instruction in the following subjects: Close and Extended Order Drills by Company and Battalion, Advance and Rear Guards, Outposts, Marches, Ceremonies, Battalion Review, Parades and Guard Mounting, Guard Duty, Calisthenics and Gymnastics, Rifle Practice, First Aid to the Injured.

1. Military Drill.

For Freshmen.

*Two exercises per week. 1st S.***2. Military Drill.**

Continuation of Drill 1. For Freshmen.

*Two exercises per week. 2d S.***3. Military Drill.**

For Sophomores.

*Two exercises per week. 1st S.***4. Military Drill.**

Continuation of Drill 3. For Sophomores.

*Two exercises per week. 2d S.***5. Military Drill.**

For Juniors.

*Two exercises per week. 1st S.***6. Military Drill.**Continuation of Drill 5. For Juniors. *Two exercises per week. 2d S.***7. Military Drill.**

Elective for Seniors only.

*Two exercises per week. 1st S.***8. Military Drill.**

Continuation of Drill 7. Elective for Seniors only.

*Two exercises per week. 2d S.***MILITARY SCIENCE.**

Military Science 1 to 8 inclusive includes theoretical instruction in the principles of the military profession and in the theory of the specific movements taught on the drill ground and in the field, the military

- *Students who are excused from Drill by competent authority are required to take additional work in some subject equivalent in hours to the military work from which they are excused.

policy and history of the United States, the principles of military discipline and the administration duties of military officers.

1. Infantry Drill Regulations.

Practical instruction and lectures. For Freshmen.

One exercise per week. 1st S.

2. Manual of Guard Duty and Small Arms Firing Regulations.

Practical instruction and lectures. For Freshmen.

Open only to students who have completed Military Science 1.

One exercise per week. 2d S.

3. Field Service Regulations.

Lectures and discussions covering advance and rear guards, outposts, patrols, etc. For Sophomores.

Open only to students who have completed Military Science 2.

One exercise per week. 1st S.

4. Field Service Regulations.

Continuation of Military Science 3. Practical field work. For Sophomores.

Open only to students who have completed Military Science 3.

One exercise per week. 2d S.

5. Field Service Regulations.

Preparation of problems requiring the issuing of field orders, knowledge of marches, transportation, subsistence, etc. Elective for Juniors.

Open only to students who have completed Military Science 4.

One exercise per week. 1st S.

6. Military Map Reading and Sketching.

Elective for Juniors.

Open only to students who have completed Military Science 5.

One exercise per week. 2d S.

7. Army Regulations, Organization and Administration.

Lectures and preparation of military papers. Elective for Seniors.

Open only to students who have completed Military Science 6.

One exercise per week. 1st S.

8. Army Regulations, Organization and Administration.

Continuation of Military Science 7. Elective for Seniors.

Open only to students who have completed Military Science 7.

One exercise per week. 2d S.

PHILOSOPHY AND PEDAGOGY.

PROF. GROVES.

The certification of teachers in the public schools is usually based upon the candidate's preparation in the subjects covered by Philosophy 1, 2, 3, 4 and 5. In many states, certification is required of public school

teachers; in other states, as in New Hampshire, it is a great advantage.

1. Psychology.

An introduction to the study of mental life. The practical needs of the student are related as closely as possible to the work of the course. For Arts and Science Sophomores or Seniors, elective for Agricultural Sophomores.

Three exercises per week. 1st S.

2. The History of Educational Theory.

The greater part of the course is taken up with the study of the modern educational reformers, Comenius, Rousseau, Pestalozzi, Froebel, Spencer and Herbart. Elective for Arts and Science Freshmen and Sophomores.

Two exercises per week. 2d S.

3. Philosophy of Education.

Education is studied as a social product and as a means of social control. Lectures on the motives of primitive society and the development of modern ideals. Elective for Agricultural Sophomores or Juniors, Arts and Science Juniors and Chemical Seniors.

Three exercises per week. 2d S.

4. The Problems of School Education.

A study of the fundamental problems in school education; attention, interest, apperception, formal discipline and class room management. New Hampshire school law is also studied. Elective for Arts and Science Students.

Three exercises per week. 1st S.

5. Advanced Psychology.

This course continues the study of consciousness begun in Philosophy 1. Especial attention is given to the application of psychology to the problems of education. Elective for Arts and Science Students.

Open only to students who have completed Philosophy 1.

Three exercises per week. 2d S.

6. Introduction to Philosophy.

A general survey of the field of philosophy with special reference to the definition of its problems, its spirit, its method and its relation to the various sciences; the theory of thought and knowledge; the doctrine of nature and of mind. This course aims to acquaint students with the ultimate problems of thought and to suggest possible solutions. Elective for Arts and Science Students.

Open only to students who have completed one course in Philosophy.

Two exercises per week. 1st S.

9. Ethics.

A study of the development of ethical thought, the various types of ethical theory and the philosophic basis of social and political rights and duties. Elective for Arts and Science Students.

Open only to students who have completed Philosophy 1 and Political Science 1.

Three exercises per week. 1st S..

PHYSICAL CULTURE.

Unless excused by proper authority, all women students are required to complete three years' work in Physical Culture.

1. Physical Culture.

A course in freehand calisthenics, dumb bell and wand drills, apparatus work and gymnasium dancing adapted to the needs of women students. *One exercise per week. 1st S.*

2. Physical Culture.

A continuation of Physical Culture 1.

One exercise per week. 2d S.

PHYSICS.

PROF. NESBIT.

1. Mechanics and Heat.

Mechanics: The principles and laws of general physics are illustrated by a number of experiments, and the student is taught to make ready application of his mathematics in the solution of problems. It is intended to provide a foundation in the dynamics of solids, liquids and gases, and also in the subjects of statics and hydrostatics. Instruction is given by lectures, recitations and problem work. The text used is Watson's Physics. Reference is made to Ames' Theory of Physics, Duff's Text-book of Physics, and other standard treatises.

Heat: The theories of heat are briefly discussed. The subdivisions of the subject, such as the nature of heat, its effects, thermometry, sources of heat, the transference and transformations of heat are considered in detail. Constant attention is given to the relation of these topics to the subject of thermodynamics. Watson's Physics is used as a text. For Agricultural and Engineering Sophomores, elective for Arts and Science Course Sophomores. *Three exercises per week. 1st S.*

2. Light, Sound and Electricity.

Light: The subject is approached from the geometrical and physical standpoint. A number of experiments are performed illustrative of wave motion in general, followed by a study of that form of wave motion upon which the modern theory is based. The subject is developed progressively and due attention is given to such subjects as reflection, refraction, color, the spectrum, and interference and polarization phenomena. The student makes a careful study of optical instruments of all classes. Watson's Physics is used as the text.

Sound: The course consists of lectures and recitations, considerable emphasis being laid upon the relation of the subject to the transmission of speech. The text used is Stone's Elementary Lessons in Sound.

Electricity and Magnetism: Numerous experiments are performed to illustrate the various phenomena of electrostatics, magnetism, current electricity and electric waves. As the course advances, the attention of the student is constantly called to the applications of electricity to the arts and sciences. S. P. Thompson's *Elementary Lessons in Electricity and Magnetism* is used as a text. For Agricultural and Engineering Sophomores, elective for Arts and Science Sophomores.

Open only to students who have completed Physics 1.

Three exercises per week. 2d S.

4. Physical Laboratory.

The strictly laboratory work of this course is preceded by a brief study of the methods of making physical measurements, of determining the constants in physical laws, and of discussing the results obtained in the experiments. A careful study is made of the different types of electrical measuring instruments and the methods employed in the laboratory.

The apparatus employed in the experimental part of Physics 4 and 5 is adapted to no special laboratory manual, and either notes are prepared for students' use or reference is made to the works of Watson, Ames and Bliss, E. L. Nichols, H. M. Godwin and others. The laws of general physics are investigated experimentally. The student is encouraged to acquire skill in the manipulation of apparatus, habits of clearness and neatness in keeping records, as well as enthusiasm for independent and original investigation. A careful study is made of the analytical balance, time measuring devices, heat measurements, the microscope, spectroscope, lens combinations, photometry, the laws of vibrating strings and the simple electrical measurements. The student has practice in the calibration of galvanometers and ammeters, the determination of the constants of instruments, the measurement of voltages, resistances, etc.

On the completion of Physics 4 and 5, an examination is given to test the student's knowledge of physical research, both in attacking a given problem and in thinking and acting for himself. For Electrical and Mechanical Juniors, elective for Arts and Science Juniors.

Four exercises per week. 1st S.

5. Physical Laboratory.

A continuation of Physics 4. For Electrical and Mechanical Juniors, elective for Arts and Science Juniors. *Four exercises per week. 2d S.*

A fee of ten dollars is required in Physics 4 and 5 to cover breakage, etc. Any unexpended balance is refunded to the student at the close of the college year.

6. Physical Laboratory.

The introduction to this course is similar to that of Physics 4. Ewell's *Physical Chemistry* and notes are used with this course. For Chemical Juniors.

Two exercises per week. 1st S.

7. Physical Laboratory.

Continuation of Physics 6 and is largely devoted to experimental work in Physical Chemistry. *Four exercises per week. 2d S.*

8. Physical Laboratory,

For Agricultural Sophomores. *One exercise per week. 2d S.*

POLITICAL SCIENCE.

PROF. SCOTT.

1. Political Economy.

An elementary course, with lectures upon some of the practical questions of the day. For Arts and Science Sophomores, Agricultural Juniors and Engineering Seniors. *Three exercises per week. 2d S.*

2. Laws of Business.

Recitations supplemented by lectures and the discussion of cases. Elective for Arts and Science Juniors and Seniors and Agricultural Seniors. *Three exercises per week. 1st S.*

3. American Constitutional Law.

Use is made of Pomeroy's Constitutional Law, which is supplemented by the decisions of the United States Supreme Court. Special attention is given to the connections between American constitutions and American political history. Elective for Arts and Science Juniors and Seniors and Agricultural Seniors. *Three exercises per week. 1st S.*

4. Money and Banking.

Recitations, readings and lectures. Elective for Agricultural Seniors and Arts and Science Juniors and Seniors.

Political Science 4 and 5 are given in alternate years. Political Science 4 will be offered in the year 1910-1911.

Open only to students who have completed Political Science 1.

Three exercises per week. 2d S.

5. Public Finance.

Recitations, readings and lectures. Elective for Agricultural Seniors and Arts and Science Juniors and Seniors.

Political Science 4 and 5 are given in alternate years. Political Science 5 will be offered in the year 1911-1912.

Open only to students who have completed Political Science 1.

Three exercises per week. 2d S.

SHOP WORK.

PROF. CARDULLO, MR. LITTLE, MR. TONKIN.

Three hours' work in the shop is reckoned as one exercise.

1a. Wood Work. Mr. Little.

Exercises in carpentry work, joinery and pattern making. For Engineering Freshmen. *Two and one half exercises per week. 1st S.*

1b. Wood Work. Mr. Little.

Same as Course 1a. Elective for Arts and Science Freshmen.

Two exercises per week. 1st S.

2. Forging. Mr. Tonkin.

This course consists of exercises in upsetting, drawing, forming and welding. For Engineering Freshmen. (Division 2.) First nine weeks.

Two exercises per week. 2d S.

3. Forging.

Same as Shop Work 2. For Electrical and Mechanical Sophomores, (Division 1).

Two exercises per week. 1st S.

4. Machine Work. Mr. Tonkin.

A course in Turning, Facing, Thread Cutting, Milling, Shaping, Scraping, Filing and Planing. For Electrical and Mechanical Sophomores.

Two and one half exercises per week. 2d S.

9. General Machine Work. Mr. Tonkin.

Continuation of Shop Work 4. For Electrical and Mechanical Juniors.

One exercise per week. 1st S.

10. Manufacturing. Mr. Tonkin.

Construction and use of jigs and special fixtures; use of limit gauges, special tools, turret and screw machinery; manufacture of some simple machine, using special appliances. For Electrical Juniors, elective for Mechanical Juniors.

One exercise per week. 2d S.

11. Special Shop Work.

Work arranged to suit the needs of particular students.

13. Wood Work.

Same as Shop Work 1. For Agricultural Freshmen. First nine weeks.

Two exercises per week. 2d S.

14. Forging. Mr. Tonkin.

For Agricultural Freshmen. First eight weeks.

Two exercises per week. 1st S.

15. Machine Work. Mr. Tonkin.

Same as Shop Work 4. For Chemical Seniors.

Two exercises per week. 1st S.

*** SPANISH.****1. Elementary Spanish.**

This course will consist of an elementary study of Spanish grammar, supplemented and followed by reading of easy Spanish tests. Elective for Arts and Science Juniors.

Three exercises per week. 1st S.

*Spanish 1 and 2 will not be given in 1910-1911.

2. Elementary Spanish.

This course will consist of a thorough review of Spanish grammar, based on the texts studied in Spanish 1, and reading of more advanced Spanish texts. Elective for Arts and Science Juniors.

Open only to students who have completed Spanish 1.

Three exercises per week. 2d S.

ZOOLOGY.

PROF. JACKSON, PROF. O'KANE, MISS KEPHART.

The courses in Zoölogy are arranged in sequence for those studying Agriculture or Economic Entomology, and for those desiring a more general course fitting them for teaching or for medical studies, though any courses offered may be taken by those who have completed previous courses necessary.

1. Invertebrate Zoology.

This course deals with the fundamental principles of life and with the structure, habits and life history of the invertebrate animals. The economic aspect will be especially emphasized. Lectures and laboratory dissection of type forms. For Agricultural Sophomores, elective for Arts and Science Freshmen and Sophomores.

Three exercises per week. 1st S.

2. Vertebrate Zoology.

A continuation of Zoölogy 1, dealing with the structure, habits and life history of the vertebrate animals, and their relation to man. Lectures and laboratory dissection of type forms. For Agricultural Sophomores, elective for Arts and Science Freshmen and Sophomores.

Open only to students who have completed Zoölogy 1.

Three exercises per week. 2d S.

3. Economic Entomology.

A general survey of the structure, habits and classification of the different orders of insects, with special reference to insects affecting crops, orchards, etc. Means and methods of combating them. Lectures, laboratory dissection and classification. For Agricultural Juniors, elective for Arts and Science Sophomores and Juniors.

Open only to students who have completed Zoölogy 1 and 2.

Three exercises per week. 1st S.

4. Advanced Entomology.

The methods of study and general principles of combating insect pests. The literature and history of Economic Entomology. Practice in rearing and combating insect pests. Elective for Agricultural and Arts and Science Sophomores and Juniors.

Open only to students who have completed Zoölogy 1, 2 and 3.

Three exercises per week. 2d S.

5. Economic Zoology.

This course will deal exclusively with the economic aspect of Zoölogy, and will consist of conferences and lectures in addition to assigned work calculated to meet the needs of the individual student.

Open only to students who have completed Zoölogy 1 and 2.

Three exercises per week. 1st S.

6. Economic Zoology.

A continuation of Zoölogy 5.

Open only to students who have completed Zoölogy 1 and 2.

Three exercises per week. 2d S.

7. General Physiology.

A study of the vital phenomena of animal life with special reference to the human body. The nervous, digestive, muscular, secretory and sensory processes will be discussed in detail.

Open only to students who have completed Zoölogy 1 and 2.

Three exercises per week. 2d S.

8. Evolution.

Lectures and laboratory work dealing with the theoretical side of the problems of evolution. The history of evolution and various theories of heredity, variation and selection will be discussed. For Agricultural Seniors.

Open only to students who have completed Zoölogy 1 and 2.

Three exercises per week. 1st S.

9. Faunal Zoology. (Invertebrates).

A study of the habits, life history and identification of local invertebrate forms. The work will consist of field trips, lectures and laboratory practice in the identification of the material collected.

Open only to students who have completed Zoölogy 1 and 2.

Three exercises per week. 1st S.

10. Faunal Zoology. (Vertebrates).

Continuation of Zoölogy 9. A study of the habits, life history and identification of local vertebrate forms with special reference to birds and mammals.

Open only to students who have completed Zoölogy 1 and 2.

Three exercises per week, 2d S.

11. Advanced Zoology.

This course is arranged to suit the individual needs of those who wish to specialize in Zoölogy.

Open only to students who have completed Zoölogy 1 and 2 and have shown a proficiency in Zoölogy. Three or four exercises per week. 1st S.

12. Advanced Zoology.

Continuation of Zoölogy 11. *Three or four exercises per week. 2d S.*

13. Zoological Seminar.

Reports and discussions upon the current literature of Zoölogy. Also reports on special topics and observations.

Open only to students by permission of the head of the department.

One exercise per week. 1st S.

14. Zoological Seminar.

Continuation of Zoölogy 13.

One exercise per week. 2d S.

FOUR-YEAR COURSES.**COURSES OF STUDY AND SCHEDULE OF HOURS.**

(For details see Description of Studies.)

Attendance at Convocation is required of all students and attendance at Military Drill is required of all male students, unless members of the Senior class or unless excused by proper authority.

AGRICULTURAL COURSE.**Freshman Year.****FIRST SEMESTER.**

<i>Chemistry 1</i>	Inorganic Chemistry.....	3
<i>Drawing 1b</i>	Industrial Drawing.....	2
<i>English 1</i>	English Composition and Rhetoric .	3
<i>French 1 or</i>	Elementary French.....	3
<i>German 1</i>	Elementary German.....	
<i>Horticulture 1</i>	Principles of Horticulture (last nine weeks).....	1½
<i>Mathematics 1</i>	Algebra.....	4
† <i>Mathematics 2</i>	Solid Geometry.....	2
<i>Drill 1</i>	Military Drill.....	1
<i>Military Science 1</i>	Infantry Drill Regulations.....	1
<i>Shop Work 14</i>	Forging (first eight weeks).....	2

SECOND SEMESTER.

<i>Chemistry 2</i>	Inorganic Chemistry.....	2
<i>Drawing 4</i>	Design of Farm Buildings.....	2
<i>English 2</i>	English Composition and Rhetoric.....	3
<i>French 2 or</i>	Elementary French.....	3
<i>German 2</i>	Elementary German.....	
<i>Horticulture 2</i>	Olericulture.....	2
<i>Mathematics 3</i>	Trigonometry (first nine weeks).....	2½
<i>Mathematics 4</i>	Surveying (last eight weeks).....	1½
<i>Drill 2</i>	Military Drill.....	1
<i>Military Science 2</i>	Manual of Guard Duty, etc.....	1
<i>Shop Work 13</i>	Wood Work (first nine weeks).....	1

†Not a required subject.

Sophomore Year.

FIRST SEMESTER.

<i>An. Husb.</i> 1	Types and Breeds of Livestock....	3
<i>Botany</i> 1	General Botany.....	3
<i>Chemistry</i> 4	Qualitative Analysis.....	3
† <i>German</i> 3	German Prose of the Nineteenth Century.....	3
<i>Drill</i> 3	Military Drill.....	1
<i>Military Science</i> 3	Field Service Regulations.....	1
† <i>Philosophy</i> 1	Psychology.....	3
<i>Physics</i> 1	Mechanics and Heat.....	3
<i>Zoölogy</i> 1	Invertebrate Zoölogy.....	3

SECOND SEMESTER.

<i>Botany</i> 2	General Botany.....	3
<i>Chemistry</i> 25	Organic Chemistry.....	1
† <i>German</i> 4	Scientific German.....	3
<i>Horticulture</i> 3	Practical Pomology.....	3
<i>Drill</i> 4	Military Drill.....	1
<i>Military Science</i> 4	Field Service Regulations.....	1
† <i>Philosophy</i> 3	Philosophy of Education.....	3
<i>Physics</i> 2	Light, Sound and Electricity.....	3
<i>Physics</i> 8	Physical Laboratory.....	1
<i>Zoölogy</i> 2	Vertebrate Zoölogy.....	3

Junior Year.

Elect courses to make a total of at least 18 hours each semester.

FIRST SEMESTER.

<i>Agronomy</i> 1	Farm Equipment and Farm Crops	3
* <i>An. Husb.</i> 5	Poultry.....	2
<i>Botany</i> 3	Plant Pathology.....	3
* <i>Botany</i> 9	Systematic Botany.....	3
<i>Chemistry</i> 7	Physiological Chemistry.....	2
<i>Dairying</i> 1	Farm Dairying.....	4
<i>Forestry</i> 1	Principles of Forestry.....	3
* <i>Horticulture</i> 4	Greenhouse Construction and Management.....	2
* <i>Horticulture</i> 8	Viticulture and Small Fruit Culture.....	2
<i>Drill</i> 5	Military Drill.....	1
* <i>Military Science</i> 5	Field Service Regulations.....	1
<i>Zoölogy</i> 3	Economic Entomology.....	3
* <i>Zoölogy</i> 5	Economic Zoölogy.....	3
* <i>Zoölogy</i> 9	Faunal Zoölogy.....	3

SECOND SEMESTER.

<i>Agronomy</i> 2	Soils and Soil Physics.....	4
<i>An. Husb.</i> 3	Feeds and Feeding.....	3
* <i>An. Husb.</i> 4	Veterinary Science.....	3
* <i>An. Husb.</i> 6	Advanced Livestock.....	3

*Elective.

†Students are required to elect either German 3 and 4 or Philosophy 1 and 3. Students who elect Philosophy in place of German in the first semester will take Political Science 1 in the second semester, leaving Philosophy 3 until the second semester of the Junior Year.

*Botany 4	Mycology.....	3
*Botany 5	Plant Physiology.....	3
*Botany 10	Bacteriology.....	3
*Dairying 3	Technology of Milk.....	2
Geology 2	Elementary Geology.....	3
*Horticulture 5	Landscape Gardening.....	2
*Horticulture 7	Nursery Management.....	3
Drill 6	Military Drill.....	1
*Military Science 6	Military Map Reading and Sketching.....	1
Political Science 1	Political Economy.....	3
*Zoölogy 4	Advanced Entomology.....	3
Zoölogy 6	Economic Zoölogy.....	3
*Zoölogy 10	Faunal Zoölogy.....	3

During the Junior Year students who desire and are qualified to take up work in the Biological or Chemical Divisions of the Agricultural Course may substitute work in these divisions for Dairying 1 and Animal Husbandry 3. Students have also an opportunity to elect courses in Animal Husbandry, Dairying and Zoölogy on the one hand and in Botany and Horticulture on the other.

Senior Year.

FIRST SEMESTER.

Elect six hours in addition to required work.

*Agronomy 3	Soil Management and Fertility....	3
Agronomy 5	Agricultural Seminar.....	2
*An. Husb. 7	Live Stock Management.....	3
*Botany 6	Plant Histology.....	3
*Botany 9	Systematic Botany.....	3
*Dairying 4	Factory Management.....	3
*Dairying 6	Dairy Research.....	2
History 5	American History to 1789.....	3
*Horticulture 9	Commercial Floriculture.....	3
*Horticulture 11	Systematic Pomology and Commercial Orchardling.....	4
Meteorology 1	Meteorology.....	2
*Drill 7	Military Drill.....	1
*Military Science 7	Army Regulations.....	1
Thesis	.....	2
Zoölogy 8	Evolution.....	3
*Zoölogy 11	Advanced Zoölogy.....	3 or 4
*Zoölogy 13	Zoölogical Seminar.....	1

SECOND SEMESTER.

Elect six hours in addition to required work.

*Agronomy 4	Manures and Fertilizers.....	2
Agronomy 6	Agricultural History and Economics (first nine weeks).....	2
Agronomy 7	Farm Mechanics (last eight weeks).....	2
*An. Husb. 2	Principles of Breeding.....	2
*Botany 5	Plant Physiology.....	3
*Elective.		

*Botany 10	Bacteriology.....	3
*Dairying 2	Advanced Butter Making.....	3
*Dairying 5	Dairy Bacteriology and Cheese Making.....	2
English 6	Argumentation.....	3
History 6	Const. and Political History of U. S. (1789-1850).....	3
*Horticulture 6	Vegetable Gardening Under Glass..	2
*Horticulture 10	Evolution and Improvement of Plants.....	2
*Horticulture 12	Advanced Landscape Gardening...	2
*Horticulture 13	Advanced Vegetable Gardening...	2
*Horticulture 14	Cold Storage and Horticultural Manufactures.....	2
*Drill 8	Military Drill.....	1
*Military Science 8	Army Regulations.....	1
Thesis	.....	2
*Zoölogy 7	General Physiology.....	3
*Zoölogy 12	Advanced Zoölogy.....	3
*Zoölogy 14	Zoölogical Seminar.....	1

In addition to the above listed courses a student may elect any other courses offered in the college for which he is qualified.

ARTS AND SCIENCE COURSE.

The requirements for graduation from the Arts and Science Course include (1) the completion of all required studies, (2) the completion of two years of science, (3) the completion of one hundred and forty-four semester hours and (4) the election of studies during the Sophomore, Junior and Senior Years according to the group system.

The group system requires that all Arts and Science Course students shall elect one *major* and two *minor* courses; the *major* to consist of twenty-one credit hours exclusive of thesis, in one of the three groups, in addition to the required work; and the *minors* to consist of eighteen credit hours in each of the other two groups, in addition to the required work.

At the time of making elections for the Junior Year, a student in the Arts and Science Course must submit to the registrar for approval of the Course Committee the selection of studies to satisfy the major requirement. Students in this course are required to elect at least eighteen hours each semester.

GROUP I.

Languages and Literature:—English; French; German; Latin; Spanish.

GROUP II.

Mathematics and Sciences:—Mathematics; Zoölogy; Drawing; Agriculture; Mechanical Engineering; Electrical Engineering; Chemistry; Botany; Physics; Geology; Meteorology.

*Elective.

GROUP III.

History; Social Science and Philosophy:—History; Political Science; Philosophy and Pedagogy.

Freshman Year.

FIRST SEMESTER.

*Botany 1	General Botany.....	3
*Chemistry 1	Inorganic Chemistry.....	3
*Drawing 1b	Industrial Drawing.....	2
English 1	English Composition and Rhetoric.....	3
French 1 or	Elementary French.....	3
German 1	Elementary German.....	
†History 1 or	European History, 476-1492....	3
†History 3	European History, 1715-1815..	
*Latin 1	Livy, Pliny.....	3
Mathematics 1	Algebra.....	4
*Mathematics 2	Solid Geometry.....	2
Drill 1	Military Drill.....	1
Military Science 1	Infantry Drill Regulations.....	1
†Physical Culture 1	Physical Culture.....	1
*Shop Work 1b	Wood Work.....	2
*Zoölogy 1	Invertebrate Zoölogy.....	3

SECOND SEMESTER.

*Botany 2	General Botany.....	3
*Chemistry 2	Inorganic Chemistry.....	2
†Drawing 16	Free-Hand or Charcoal Drawing (Last eight weeks).....	1½
English 2	English Composition and Rhetoric.....	3
French 2 or	Elementary French.....	3
German 2	Elementary German.....	
†History 2 or	European History, 1492-1715 ...	3
†History 4	European History since 1815....	
*Latin 2	Terence.....	3
Mathematics 3	Trigonometry (first nine weeks) ...	2½
†Mathematics 4	Surveying (last eight weeks).....	1½
Drill 2	Military Drill.....	1
Military Science 2	Manual of Guard Duty.....	1
*Philosophy 2	History of Educational Theory....	2
†Physical Culture 2	Physical Culture.....	1
*Zoölogy 2	Vertebrate Zoölogy.....	3

Sophomore Year.

FIRST SEMESTER.

*Botany 1	General Botany.....	3
*Chemistry 4	Qualitative Analysis.....	3
*Drawing 9	Free-Hand Drawing.....	2

*Elective.

†Students changing from other courses to the Arts and Science Course may take the required History in the Sophomore Year. Freshmen are required to elect either Drawing 16 or Mathematics 4.

†Women students are required to take Physical Culture 1 and 2 instead of Drill and Military Science.

*English 3	Advanced English Composition and Criticism.....	3
*German 3	German Prose of the Nineteenth Century.....	3
*History 1 or	European History, 476-1492....	3
*History 3	European History, 1715-1815....	
*Latin 3	Tacitus.....	3
*Mathematics 5	Analytical Geometry.....	5
Drill 3	Military Drill.....	1
Military Science 3	Field Service Regulations.....	1
Philosophy 1	Psychology.....	3
†Physical Culture 1	Physical Culture.....	1
*Physics 1	Mechanics and Heat.....	3
*Zoölogy 1	Invertebrate Zoölogy.....	3
*Zoölogy 3	Economic Entomology.....	3
*Zoölogy 5	Economic Zoölogy.....	3

SECOND SEMESTER.

*Botany 2	General Botany.....	3
*Chemistry 25	Organic Chemistry.....	1
*Drawing 10	Free-Hand Drawing.....	2
*English 6	Argumentation.....	3
*German 4	Scientific German.....	3
*History 2 or	European History, 1492-1715....	3
*History 4	European History since 1815....	
*Latin 4	Horace.....	3
*Mathematics 6	Calculus.....	5
Drill 4	Military Drill.....	1
Military Science 4	Field Service Regulations.....	1
†Physical Culture 2	Physical Culture.....	1
*Physics 2	Light, Sound and Electricity.....	3
*Philosophy 2	History of Educational Theory....	2
Political Science 1	Political Economy.....	3
*Zoölogy 2	Vertebrate Zoölogy.....	3
*Zoölogy 4	Advanced Entomology.....	3
*Zoölogy 6	Economic Zoölogy.....	3

Junior Year.

All elective, except Drill 5 and 6 and Physical Culture 1 and 2.

FIRST SEMESTER.

Botany 3	Plant Pathology.....	3
Botany 6	Plant Histology.....	3
Botany 9	Systematic Botany.....	3
Chemistry 4	Qualitative Analysis.....	3
Drawing 11	Architectural Drawing.....	3
English 3	Advanced English Composition ...	3
English 5	English Novel.....	3
French 3	French Prose.....	3

*Elective.

†Students changing from other courses to the Arts and Science Course may take the required History in the Sophomore Year. Freshmen are required to elect either Drawing 16 or Mathematics 4.

‡Women students are required to take Physical Culture 1 and 2 instead of Drill and Military Science.

<i>History</i> 5	American History to 1789.....	3
<i>Mathematics</i> 7	Differential Equations.....	2
<i>Drill</i> 5	Military Drill.....	1
<i>Military Science</i> 5	Field Service Regulations.....	1
<i>Philosophy</i> 4	Problems of School Education.....	3
<i>Physical Culture</i> 1	Physical Culture.....	1
<i>Physics</i> 4	Physical Laboratory.....	4
<i>Political Science</i> 2	Laws of Business.....	3
<i>Political Science</i> 3	American Const. Law.....	3
<i>Spanish</i> 1	Elementary Spanish.....	3
<i>Zoölogy</i> 3	Economic Entomology.....	3
<i>Zoölogy</i> 9	Faunal Zoölogy.....	3

SECOND SEMESTER.

<i>Botany</i> 4	Mycology.....	3
<i>Botany</i> 5	Plant Physiology.....	3
<i>Botany</i> 10	Bacteriology.....	3
<i>Chemistry</i> 25	Organic Chemistry.....	1
<i>Drawing</i> 12	Architectural Drawing.....	3
<i>English</i> 4	English Drama.....	3
<i>English</i> 6	Argumentation.....	3
<i>French</i> 4	French Prose, History and Travel..	3
<i>Geology</i> 1	Mineralogy.....	2
<i>Geology</i> 2	Elementary Geology.....	3
<i>History</i> 6	Const. and Political History of U. S. (1789-1850).....	3
<i>Mathematics</i> 8	Quaternions.....	2
<i>Drill</i> 6	Military Drill.....	1
<i>Military Science</i> 6	Military Map Reading and Sketch- ing.....	1
<i>Philosophy</i> 3	Philosophy of Education.....	3
<i>Philosophy</i> 5	Advanced Psychology.....	3
<i>Physical Culture</i> 2	Physical Culture.....	1
<i>Physics</i> 5	Physical Laboratory.....	4
<i>Political Science</i> 4 or	Money and Banking.....	3
<i>Political Science</i> 5	Public Finance.....	
<i>Spanish</i> 2	Elementary Spanish.....	3
<i>Zoölogy</i> 7	General Physiology.....	3
<i>Zoölogy</i> 10	Faunal Zoölogy.....	3

Senior Year.

All elective

FIRST SEMESTER.

<i>Botany</i> 3	Plant Pathology.....	3
<i>Botany</i> 6	Plant Histology.....	3
<i>Botany</i> 9	Systematic Botany.....	3
<i>Chemistry</i> 7	Physiological Chemistry.....	2
<i>Drawing</i> 13	Advanced Architectural Drawing..	3
<i>English</i> 5	English Novel.....	3
<i>French</i> 5	French Prose of 19th Century.....	3
<i>Geology</i> 3	Historical Geology.....	3
<i>German</i> 9	German Composition.....	2
<i>German</i> 13	Sudermann.....	3

<i>History</i> 7	Const. and Political History of U. S. since 1850.....	3
<i>Meteorology</i> 1	Meteorology.....	2
<i>Drill</i> 7	Military Drill.....	1
<i>Military Science</i> 7	Army Regulations.....	1
<i>Philosophy</i> 1	Psychology.....	3
<i>Philosophy</i> 4	Problems of School Education.....	3
<i>Philosophy</i> 6	Introduction to Philosophy.....	2
<i>Philosophy</i> 9	Ethics.....	3
<i>Political Science</i> 2	Laws of Business.....	3
<i>Political Science</i> 3	American Constitutional Law.....	3
<i>Spanish</i> 1	Elementary Spanish.....	3
<i>Thesis</i>	.....	2
<i>Zoölogy</i> 8	Evolution.....	3
<i>Zoölogy</i> 11	Advanced Zoölogy.....	3 or 4
<i>Zoölogy</i> 13	Zoölogical Seminar.....	1

SECOND SEMESTER.

<i>Botany</i> 4	Mycology.....	3
<i>Botany</i> 5	Plant Physiology.....	3
<i>Botany</i> 8	Advanced Botany.....	3
<i>Botany</i> 10	Bacteriology.....	3
<i>Drawing</i> 14	Advanced Architectural Drawing..	2
<i>English</i> 4	English Drama.....	3
<i>English</i> 7	American Literature.....	4
<i>English</i> 8	Modern English Poetry.....	3
<i>French</i> 6	French Prose of 19th Century.....	3
<i>Geology</i> 2	Elementary Geology.....	3
<i>German</i> 10	German Composition.....	2
<i>German</i> 14	Sudermann and his Contemporaries	3
<i>Mathematics</i> 9	Astronomy.....	2
<i>Drill</i> 8	Military Drill.....	1
<i>Military Science</i> 8	Army Regulations.....	1
<i>Philosophy</i> 3	Philosophy of Education.....	3
<i>Philosophy</i> 5	Advanced Psychology.....	3
<i>Political Science</i> 4, or	Money and Banking.....	3
<i>Political Science</i> 5	Public Finance.....	
<i>Spanish</i> 2	Elementary Spanish.....	3
<i>Thesis</i>	.....	1 or 2
<i>Zoölogy</i> 12	Advanced Zoölogy.....	3 or 4
<i>Zoölogy</i> 14	Zoölogical Seminar.....	1

ENGINEERING COURSES.

Freshman Year.

FIRST SEMESTER.

<i>Chemistry</i> 1	Inorganic Chemistry.....	3
<i>Drawing</i> 1a	Industrial Drawing.....	2½
<i>English</i> 1	English Composition and Rhet- oric.....	3
<i>French</i> 1 or	Elementary French.....	3
<i>German</i> 1	Elementary German.....	
<i>Mathematics</i> 1	Algebra.....	4
† <i>Mathematics</i> 2	Solid Geometry.....	2

† For Freshmen entering without the subject.

<i>Drill 1</i>	Military Drill.....	1
<i>Military Science 1</i>	Infantry Drill and Regulations....	1
<i>Shop Work 1a</i>	Wood Work.....	2½

SECOND SEMESTER.

<i>Chemistry 2</i>	Inorganic Chemistry.....	2
† <i>Chemistry 4</i>	Qualitative Analysis (first division), (first nine weeks).....	3
<i>Drawing 2a</i>	Descriptive Geometry (first division).....	3
<i>Drawing 2b</i>	Descriptive Geometry (second division), (first nine weeks).....	2
<i>Drawing 3</i>	Continuation of Drawing 2 (second division), (last eight weeks)	2
<i>English 2</i>	English Composition and Rhetoric.....	3
<i>French 2 or</i>	Elementary French.....	3
<i>German 2</i>	Elementary German.....	
<i>Mathematics 3</i>	Trigonometry (first nine weeks)....	2½
<i>Mathematics 4</i>	Surveying (last eight weeks).....	1½
<i>Drill 2</i>	Military Drill.....	1
<i>Military Science 2</i>	Manual of Guard Duty, etc.....	1
† <i>Shop Work 2</i>	Forging (second division), (first nine weeks).....	2

CHEMICAL ENGINEERING COURSE.

Sophomore Year.

FIRST SEMESTER.

<i>Chemistry 5</i>	Qualitative Analysis (first five weeks).....	1½
<i>Chemistry 10</i>	Quantitative Analysis (last twelve weeks).....	3½
<i>Drawing 7</i>	Elementary Machine Drawing and Free-Hand Drawing of Chem. Apparatus.....	2
<i>German 3</i>	German Prose of the Nineteenth Century.....	3
<i>Mathematics 5</i>	Analytical Geometry.....	5
<i>Drill 3</i>	Drill.....	1
<i>Military Science 3</i>	Field Service Regulations.....	1
<i>Physics 1</i>	Mechanics and Heat.....	3

SECOND SEMESTER.

<i>Chemistry 6</i>	Organic Chemistry.....	3
<i>Chemistry 11</i>	Quantitative Analysis.....	6
<i>German 4</i>	Scientific German.....	3
<i>Mathematics 6</i>	Differential and Integral Calculus..	5
<i>Drill 4</i>	Military Drill.....	1
<i>Military Science 4</i>	Field Service Regulations.....	1
<i>Physics 2</i>	Light, Sound and Electricity.....	3

†Division 1 elects Chemistry 4 instead of Shop Work 2 and Division 2 elects Shop Work 2 instead of Chemistry 4. These divisions are made on the basis of scholarship in Chemistry 1.

Junior Year.

FIRST SEMESTER.

<i>Chemistry 7</i>	Physiological Chemistry.....	2
<i>Chemistry 8</i>	Organic Chemical Laboratory.....	3
<i>Chemistry 12</i>	Advanced Quantitative Analysis...	4
<i>Chemistry 19</i>	Chemical Journals.....	2
† <i>Chemistry 21</i>	Physical Chemistry.....	2
<i>Machine Design 3</i>	Theoretical Mechanics	4
<i>Drill 5</i>	Military Drill	1
‡ <i>Military Science 5</i>	Field Service Regulations.....	1
<i>Physics 6</i>	Physical Laboratory.....	2

SECOND SEMESTER.

<i>Chemistry 13</i>	Advanced Quantitative Analysis ..	4
† <i>Chemistry 14 and</i>	Industrial Chemistry.....	2
† <i>Chemistry 15 or</i>	Metallurgy.....	1
† <i>Chemistry 22</i>	Physical and Electro-chemistry. }	3
<i>Chemistry 20</i>	Chemical Journals.....	2
<i>Geology 1</i>	Mineralogy.....	2
<i>Machine Design 5</i>	Theoretical Mechanics.....	4
<i>Drill 6</i>	Military Drill.....	1
‡ <i>Military Science 6</i>	Military Map Reading and Sketch- ing	1
<i>Physics 7</i>	Physical Laboratory	4

Senior Year.

FIRST SEMESTER.

<i>Chemistry 16</i>	Assaying.....	1
† <i>Chemistry 21</i>	Physical Chemistry.....	2
<i>Chemistry 23</i>	Chemical Research and Thesis ...	8
<i>Elect. Engineering 21</i>	Industrial Electricity	3
<i>Mech. Engineering 7</i>	Thermodynamics.....	3
‡ <i>Drill 7</i>	Military Drill.....	1
‡ <i>Military Science 7</i>	Army Regulations.....	1
<i>Shop Work 15</i>	Machine Shop.....	2

SECOND SEMESTER.

† <i>Chemistry 14 and</i>	Industrial Chemistry.....	2
† <i>Chemistry 15 or</i>	Metallurgy.....	1
† <i>Chemistry 22</i>	Physical and Electro-Chemistry. }	3
<i>Chemistry 24</i>	Thesis.....	8
<i>Elect. Engineering 22</i>	Industrial Engineering.....	3
* <i>English 6 or</i>	Argumentation.....	3
* <i>Philosophy 3</i>	History of Education.....	3
‡ <i>Drill 8</i>	Military Drill.....	1
‡ <i>Military Science 8</i>	Army Regulations.....	1
<i>Political Science 1</i>	Political Economy.....	3

*Chemical Seniors must elect either English 6 or Philosophy 3.

†Given in alternate years.

‡Not a required subject.

ELECTRICAL AND MECHANICAL ENGINEERING COURSES.

Sophomore Year.

FIRST SEMESTER.

†Chemistry 4	Qualitative Chemical Analysis (second division).....	3
Drawing 5	Descriptive Geometry (first division), (first eight weeks).....	1
Drawing 6a	Elementary Machine Drawing (first division), (last nine weeks)	1½
Drawing 6b	Elementary Machine Drawing (second division).....	2
German 3	German Prose of the Nineteenth Century.....	3
Mathematics 5	Analytical Geometry.....	5
Machine Design 1	Mechanism.....	3
Drill 3	Military Drill.....	1
Military Science 3	Field Service Regulations.....	1
Physics 1	Mechanics and Heat.....	3
†Shop Work 3	Forging (first division).....	2

SECOND SEMESTER.

Drawing 3	Machine Drawing.....	2½
German 4	Scientific German.....	3
Mathematics 6	Calculus.....	5
Machine Design 2a	Mechanism.....	2
Machine Design 2b	Elementary Machine Design.....	1
Drill 4	Military Drill.....	1
Military Science 4	Field Service Regulations.....	1
Physics 2	Light, Sound and Electricity.....	3
Shop Work 4	Machine Work.....	2½

ELECTRICAL ENGINEERING COURSE.

Junior Year.

FIRST SEMESTER.

Elect. Engineering 1	Dynamo Electric Machinery.....	3
Machine Design 3	Theoretical Mechanics.....	4
Machine Design 4	Designing and Drawing.....	3
Mech. Engineering 7	Thermodynamics.....	3
Mech. Engineering 9	Mechanical Laboratory.....	2
Drill 5	Military Drill.....	1
†Military Science 5	Field Service Regulations.....	1
Physics 4	Physical Laboratory.....	4
Shop Work 9	General Machine Work.....	1

SECOND SEMESTER.

Elect. Engineering 2	Dynamo Electric Machinery.....	3
Elect. Engineering 4	Electrical Laboratory.....	3
Machine Design 5	Theoretical Mechanics.....	4

†Division 1 elects Shop Work 3 instead of Chemistry 4, and Division 2 elects Chemistry 4 instead of Shop Work 3.

†Not a required subject.

<i>Mech. Engineering</i> 8	Thermodynamics.....	3
<i>Mech. Engineering</i> 10	Mechanical Laboratory.....	2
<i>Drill</i> 6	Military Drill.....	1
† <i>Military Science</i> 6	Military Map Reading and Sketching.....	1
<i>Physics</i> 5	Physical Laboratory.....	4
<i>Shop Work</i> 10	Manufacturing.....	1

Senior Year.

FIRST SEMESTER.

<i>Elect. Engineering</i> 11	<i>Elect. Engineering Practice</i>	4
<i>Elect. Engineering</i> 13	<i>Electric Railways</i>	2
<i>Elect. Engineering</i> 15	<i>Electrical Laboratory</i>	4
† <i>Elect. Engineering</i> 23	<i>Contracts and Specifications</i>	1
<i>Mech. Engineering</i> 11	<i>Hydraulics</i>	4
<i>Mech. Engineering</i> 12	<i>Materials of Engineering</i>	2
<i>Mech. Engineering</i> 13	<i>Mechanical Laboratory</i>	3
† <i>Drill</i> 7	<i>Military Science</i>	1
† <i>Military Science</i> 7	<i>Army Regulations</i>	1

SECOND SEMESTER.

<i>Elect. Engineering</i> 12	<i>Elect. Engineering Practice</i>	4
<i>Elect. Engineering</i> 16	<i>Electrical Laboratory</i>	4
<i>Elect. Engineering</i> 18	<i>Thesis</i>	3
<i>Elect. Engineering</i> 25	<i>Design of Electrical Machinery</i>	3
<i>Mech. Engineering</i> 19	<i>Economics of Engineering</i>	3
† <i>Drill</i> 8	<i>Military Drill</i>	1
† <i>Military Science</i> 8	<i>Army Regulations</i>	1
<i>Political Science</i> 1	<i>Political Economy</i>	3

MECHANICAL ENGINEERING COURSE.

Junior Year.

FIRST SEMESTER.

<i>Elect. Engineering</i> 1	<i>Dynamo Electric Machinery</i>	3
<i>Machine Design</i> 3	<i>Theoretical Mechanics</i>	4
<i>Machine Design</i> 4	<i>Designing and Drawing</i>	3
<i>Mech. Engineering</i> 7	<i>Thermodynamics</i>	3
<i>Mech. Engineering</i> 9	<i>Mechanical Laboratory</i>	2
<i>Drill</i> 5	<i>Military Drill</i>	1
† <i>Military Science</i> 5	<i>Field Service Regulations</i>	1
<i>Physics</i> 4	<i>Physical Laboratory</i>	4
<i>Shop Work</i> 9	<i>General Machine Work</i>	1

SECOND SEMESTER.

<i>Elect. Engineering</i> 2	<i>Dynamo Electric Machinery</i>	3
<i>Elect. Engineering</i> 17	<i>Electrical Laboratory</i>	1
<i>Machine Design</i> 5	<i>Theoretical Mechanics</i>	4
<i>Machine Design</i> 6	<i>Shop Machinery</i>	3
<i>Mech. Engineering</i> 8	<i>Thermodynamics</i>	3
<i>Mech. Engineering</i> 10	<i>Mechanical Laboratory</i>	2

†Not a required subject.

Drill 6
 ‡*Military Science 6*

Physics 5
 ‡*Shopwork 10*

Military Drill..... 1
Military Map Reading and Sketching..... 1
Physical Laboratory..... 4
Manufacturing..... 1

Senior Year.

FIRST SEMESTER.

Elect. Engineering 19
Elect. Engineering 23
Elect. Engineering 24
Mech. Engineering 11
Mech. Engineering 12
Mech. Engineering 13
Mech. Engineering 15
 ‡*Drill 7*
 ‡*Military Science 7*

Dynamo Electric Machinery..... 3
Contracts and Specifications..... 1
Electrical Laboratory..... 2
Hydraulics..... 4
Materials of Engineering..... 2
Mechanical Laboratory..... 3
Heat Engine Design..... 5
Military Drill..... 1
Army Regulations..... 1

SECOND SEMESTER.

Elect. Engineering 20
Mech. Engineering 14
Mech. Engineering 16
Mech. Engineering 17
Mech. Engineering 19
 ‡*Drill 8*
 ‡*Military Science 8*
Political Science 1
Thesis

Dynamo Electric Machinery..... 2
Mechanical Laboratory..... 3
Shop Design and Equipment..... 4
Power Plant Design..... 2
Economics of Engineering..... 3
Military Drill..... 1
Army Regulations..... 1
Political Economy..... 3
 3

‡Not a required subject.

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	English 1	Mathematics 1 French 1 German 1	Chemistry 1	Drill 1	Drawing 1b
Tuesday.....			Mathematics 1	Military Sci. 1	Drawing 1b
Wednesday.....	English 1		Chemistry 1	Horticulture 1 (Last nine weeks)	Shop Work 14 (First eight weeks)
Thursday.....		French 1 German 1	Mathematics 1	Mathematics 1	Horticulture 1 (Last nine weeks) Shop Work 14 (First eight weeks)
Friday.....	English 1	Chemistry 1 French 1 German 1	Chemistry 1	Drill 1	Horticulture 1 (Last nine weeks) Shop Work 14 (First eight weeks)
Saturday.....			Mathematics 1	Mathematics 1	

SECOND SEMESTER

Monday.....	English 2		Chemistry 2	Drill 2	Shop Work 13 (First nine weeks) Mathematics 4 (Last eight weeks)
Tuesday.....		French 2 German 2	Military Sci. 2	Mathematics 3 (First nine weeks)	Shop Work 13 (First nine weeks) Mathematics 4 (Last eight weeks)
Wednesday.....	English 2	Drawing 4 French 2 German 2	Drawing 4 Mathematics 3 (First nine weeks)	Mathematics 3 (First nine weeks)	Drawing 4 (First nine weeks) Mathematics 4 (Last eight weeks)
Thursday.....			Mathematics 3 (First nine weeks)	Mathematics 3 (First nine weeks)	Horticulture 2
Friday.....	English 2	French 2 German 2	Chemistry 2 Mathematics 3 (First nine weeks)	Drill 2	Drawing 4 (First nine weeks) Mathematics 4 (Last eight weeks)
Saturday.....	Horticulture 2		Mathematics 3 (First nine weeks)	Mathematics 3 (First nine weeks)	

Mathematics 2 First Semester, hours to be arranged.

AGRICULTURAL COURSE—SOPHOMORE YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	* Philosophy 1	Military Sci. 3	Botany 1	Drill 3	Chemistry 4
Tuesday.....	Zoology 1	* Philosophy 1	Physics 1	* German 3	Chemistry 4
Wednesday.....	Animal Husb. 1		Botany 1	Botany 1	Chemistry 4
Thursday.....		* Philosophy 1	Physics 1	* German 3	Animal Husb. 1
Friday.....	Animal Husb. 1		Zoology 1	Drill 3	Zoology 1
Saturday.....	Botany 1	Botany 1	Physics 1	* German 3	
SECOND SEMESTER					
Monday.....	Chemistry 25	Zoology 2	Botany 2	Drill 4	Horticulture 3
Tuesday.....	* Political Sci. 1		Physics 2	* German 4	Botany 2
Wednesday.....	Physics 8	Physics 8	Physics 8	Military Sci. 4	Botany 2
Thursday.....	* Political Sci. 1		Physics 2	* German 4	
Friday.....		Horticulture 3	Zoology 2	Drill 4	Zoology 2
Saturday.....	* Political Sci. 1	Horticulture 3	Physics 2	* German 4	

* Elective. See Page 71.

AGRICULTURAL COURSE—JUNIOR YEAR

Day	FIRST SEMESTER				P. M.	
	8-9	9-10	10-11	11-12		
Monday.....	*Horticulture 8	Forestry 1	Zoology 3	Drill 5	Botany 3	
Tuesday.....	Botany 3	Forestry 1	Dairying 1	Agronomy 1	*Animal Husb. 5 *Horticulture 4	
Wednesday.....	Botany 3	Botany 3	Zoology 3	Chemistry 7	Dairying 1	
Thursday.....	Forestry 1	Forestry 1	Forestry 1	Agronomy 1	Zoology 3	
Friday.....	*Horticulture 8	*Animal Husb. 5 *Horticulture 4	Dairying 1	Drill 5	Agronomy 1	
Saturday.....	Dairying 1	Dairying 1	Chemistry 7	*Military Sci. 5		

Day	SECOND SEMESTER				P. M.	
	8-9	9-10	10-11	11-12		
Monday.....	*Horticulture 5	*Dairying 3 *Horticulture 5	Geology 2	Drill 6	Agronomy 2	
Tuesday.....	*Horticulture 7 *Animal Husb. 6	*Philosophy 3 †Political Sci. 1	*Animal Husb. 4	Agronomy 2	*Botany 5 *Botany 10 *Dairying 3 *Zoology 6	
Wednesday.....	*Horticulture 5	*Horticulture 5	Animal Husb. 3	Agronomy 2	*Animal Husb. 6 *Horticulture 7 *Zoology 6	
Thursday.....	*Horticulture 7 *Animal Husb. 6	*Philosophy 3 †Political Sci. 1	Animal Husb. 3	Geology 2	Geology 2	
Friday.....	*Botany 5 *Botany 10	*Botany 5 *Botany 10	*Animal Husb. 4	Drill 6	Animal Husb. 3	
Saturday.....	*Botany 5 *Botany 10	*Philosophy 3 †Political Sci. 1	*Animal Husb. 4 *Zoology 6	*Military Sci. 6		

For hours of courses not scheduled see instructor.

* Elective. † Required if not previously taken.

AGRICULTURAL COURSE—SENIOR YEAR

FIRST SEMESTER						SECOND SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.	Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Zoölogy 8	*Animal Husb. 7	*Horticulture 9	*Drill 7 *Horticulture 11	Agronomy 5	Monday.....		Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	History 6	*Drill 8 *Agronomy 4	*Dairying 2 *Horticulture 14
Tuesday.....		*Animal Husb. 7	History 5	*Horticulture 11	*Agronomy 3 *Animal Husb. 7 *Botany 6 *Botany 9	Tuesday.....	*Horticulture 6	Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	English 6	*Dairying 2	*Animal Husb. 2 *Botany 5 *Botany 10
Wednesday.....	Zoölogy 8	Meteorology 1	*Horticulture 9		*Agronomy 3	Wednesday.....	*Horticulture 10	Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	History 6	*Animal Husb. 2	*Dairying 5
Thursday.....	*Botany 6 *Botany 9	*Botany 6 *Botany 9	History 5		*Horticulture 11	Thursday.....	*Dairying 5 *Horticulture 12 *Horticulture 13	Agronomy 6 (First nine weeks) Agronomy 7 (Last eight weeks)	English 6	*Dairying 2 *Horticulture 6	
Friday.....	Zoölogy 8	Meteorology 1	*Botany 6 *Botany 9	*Drill 7 *Horticulture 11		Friday.....	*Botany 5 *Botany 10	*Botany 5 *Botany 10	History 6	*Drill 8 *Horticulture 14	*Dairying 5
Saturday.....	*Dairying 6	*Dairying 6	History 5			Saturday.....	*Botany 5 *Botany 10 *Horticulture 12 *Horticulture 13	*Horticulture 12 *Horticulture 13	English 6		

* Elective.

For hours of courses not scheduled see instructor.

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday	English 1	Mathematics 1 French 1 German 1	*Botany 1 *Chemistry 1	Drill 1	*Drawing 1b *Latin 1
Tuesday	*Zoölogy 1	History 1 or History 3	Mathematics 1 *Botany 1 *Chemistry 1	Military Sci. 1	*Drawing 1b *Latin 1
Wednesday	English 1	French 1 German 1	Mathematics 1	*Botany 1	*Latin 1 *Shopwork 1b
Thursday		History 1 or History 3	*Chemistry 1 *Zoölogy 1	Mathematics 1	History 1 or History 3
Friday	English 1	*Botany 1 French 1 German 1	Mathematics 1	Drill 1	*Shopwork 1b *Zoölogy 1
Saturday	*Botany 1		Mathematics 1	Mathematics 1	

SECOND SEMESTER

Monday	English 2	*Philosophy 2	*Botany 2 *Chemistry 2	Drill 2	†Drawing 16 (Last eight weeks) †Mathematics 4 (Last eight weeks) *Botany 2
Tuesday	*Latin 2	French 2 German 2	Military Sci. 2	Mathematics 3 (First nine weeks)	†Drawing 16 (Last eight weeks) †Mathematics 4 (Last eight weeks) *Botany 2
Wednesday	English 2	History 2 or History 4	*Philosophy 2	Mathematics 3 (First nine weeks)	†Drawing 16 (Last eight weeks) †Mathematics 4 (Last eight weeks)
Thursday	*Latin 2	French 2 German 2	Mathematics 3 (First nine weeks)	Mathematics 3 (First nine weeks)	History 2 or History 4
Friday	English 2	History 2 or History 4	*Chemistry 2	Drill 2	†Drawing 16 (Last eight weeks) †Mathematics 4 (Last eight weeks)
Saturday	*Latin 2	French 2 German 2	Mathematics 3 (First nine weeks)	Mathematics 3 (First nine weeks)	

*Elective.

Mathematics 2, First Semester, hours to be arranged.

† Elect either Drawing 16 or Mathematics 4.

ARTS AND SCIENCE COURSE—SOPHOMORE YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday	Philosophy 1	Military Sci. 3	*Botany 1	Drill 3	*Chemistry 4 *English 3
Tuesday	*Mathematics 5 *Zoology 1	Philosophy 1 *History 1 *History 3	*Physics 1	*German 3	*Chemistry 4 *English 3
Wednesday	*Latin 3 *Mathematics 5		*Botany 1	*Botany 1	*Chemistry 4 *English 3
Thursday	*Latin 3 *Mathematics 5	Philosophy 1 *History 1 *History 3	*Physics 1	*German 3	*History 1 *History 3
Friday	*Botany 1 *Mathematics 5		*Zoology 1	Drill 3	*Zoology 1
Saturday		*Botany 1 *Mathematics 5	*Physics 1	*German 3	

SECOND SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday	*Chemistry 25 *Latin 4	*Philosophy 2 *Zoology 2	*Botany 2 *English 6 *Physics 2	Drill 4	*Botany 2
Tuesday	*Mathematics 6 *Latin 4	Political Sci. 1 *History 2 *History 4	*Botany 2 *Philosophy 2	*German 4	*Botany 2
Wednesday	*Mathematics 6		*English 6 *Physics 2	Military Sci. 4	*History 2 *History 4
Thursday	*Mathematics 6 *Latin 4	Political Sci. 1 *History 2 *History 4		*German 4	
Friday	*Mathematics 6		*Zoology 2 *English 6 *Physics 2	Drill 4	*Zoology 2
Saturday	*Mathematics 6	Political Sci. 1		*German 4	

*Elective.

ARTS AND SCIENCE COURSE—JUNIOR YEAR

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday	Physics 4	French 3	Zoology 3	Drill 5 Political Sci. 3	Chemistry 4 English 3 Physics 4 Spanish 1
Tuesday	Philosophy 4	Political Sci. 2	History 5	English 5	Chemistry 4 English 3 Physics 4 Spanish 1
Wednesday		French 3	Zoology 3	Chemistry 7 Political Sci. 3	Botany 6 Botany 9 Chemistry 4 English 3 Spanish 1
Thursday	Botany 6 Botany 9 Philosophy 4	Botany 6 Botany 9 Political Sci. 2	History 5	English 5	Zoology 3
Friday		French 3	Botany 6 Botany 9	Drill 5 Political Sci. 3	English 3
Saturday	Philosophy 4	Political Sci. 2	Chemistry 7 History 5	Military Sci. 5 English 5 Physics 4	

SECOND SEMESTER

Monday	Chemistry 25 Geology 1	French 4 Geology 1	Geology 2 History 6	Drill 6 Philosophy 5	Spanish 2 Botany 5 Botany 10 English 4 Spanish 2 Physics 5 Spanish 2
Tuesday		Philosophy 3	English 6	Political Sci. 4 or Political Sci. 5 Philosophy 5	Physics 5 Spanish 2 English 4 Geology 2
Wednesday		French 4	History 6	Geology 2 Political Sci. 4 or Political Sci. 5	
Thursday		Philosophy 3	English 6	Drill 6 Philosophy 5	English 4 Physics 5
Friday	Botany 5 Botany 10 Geology 1	Botany 5 Botany 10 French 4 Geology 1	History 6	Military Sci. 6 Political Sci. 4 or Political Sci. 5	
Saturday	Botany 5 Botany 10	Philosophy 3	English 6		

For hours of courses not scheduled see instructor.
All elective.

ARTS AND SCIENCE COURSE—SENIOR YEAR

FIRST SEMESTER

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	German 13 Philosophy 1 Zoölogy 8	Philosophy 9 Political Sci. 2 Philosophy 1	French 5	Drill 7 Political Sci. 3	History 7 Spanish 1
Tuesday.....	Philosophy 4		French 9	English 5	Spanish 1 Botany 6 Botany 9 History 7 Spanish 1
Wednesday.....	Philosophy 6 German 13 Zoölogy 8	Meteorology 1 Philosophy 9 Botany 6 Botany 9 Political Sci. 2 Philosophy 1	French 5	Political Sci. 3	
Thursday.....	Botany 6 Botany 9 Philosophy 4		French 9 German 9	English 5	
Friday.....	Philosophy 6 German 13 Zoölogy 8	Meteorology 1 Philosophy 9	Botany 6 Botany 9 French 5	Drill 7 Political Sci. 3	History 7
Saturday.....	Philosophy 4	Political Sci. 2	German 9	English 5	

SECOND SEMESTER

Monday.....	English 8	Mathematics 9	French 6 Geology 2	Philosophy 5 English 7 Drill 8	Spanish 2 Botany 5 Botany 10 English 4 Spanish 2
Tuesday.....	German 14	Philosophy 3	French 10	Political Sci. 4 or Political Sci. 5	
Wednesday.....	English 8	Mathematics 9	French 6	Philosophy 5 English 7 Geology 2	Spanish 2
Thursday.....	German 14	Philosophy 3	German 10 French 10	Political Sci. 4 or Political Sci. 5	English 4 Geology 2
Friday.....	Botany 5 Botany 10 English 8	Botany 5 Botany 10	French 6	Drill 8 Philosophy 5 English 7	English 4 English 7
Saturday.....	Botany 5 Botany 10 German 14	Philosophy 3	German 10	Political Sci. 4 or Political Sci. 5	

For hours of courses not scheduled see instructor.
All elective.

‡ENGINEERING COURSES—FRESHMAN YEAR

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....		English 1 (Div. 1) Mathematics 1 (Div. 2)	Chemistry 1 (Div. 1 & 2)	Drill 1 (Div. 1 & 2)	Drawing 1a (Div. 2) Shopwork 1a (Div. 1)
Tuesday.....	English 1 (Div. 2) German 1 (Div. 1)	French 1 (Div. 1 & 2) German 1 (Div. 2)	Mathematics 1 (Div. 2) Military Sci. 1 (Div. 1)	Mathematics 1 (Div. 1)	Drawing 1a (Div. 2) Shopwork 1a (Div. 1)
Wednesday.....		English 1 (Div. 1) Military Sci. 1 (Div. 2)	Chemistry 1 (Div. 1 & 2)	Mathematics 1 (Div. 1)	†Drawing 1a (Div. 1 or 2) †Shopwork 1a (Div. 1 or 2)
Thursday.....	English 1 (Div. 2) German 1 (Div. 1)	French 1 (Div. 1 & 2) German 1 (Div. 2)	Mathematics 1 (Div. 1 & 2)	Mathematics 1 (Div. 1 & 2)	Drawing 1a (Div. 1) Shopwork 1a (Div. 2)
Friday.....		English 1 (Div. 1)	Chemistry 1 (Div. 1 & 2)	Drill 1 (Div. 1 & 2)	Drawing 1a (Div. 1) Shopwork 1a (Div. 2)
Saturday.....	English 1 (Div. 2) German 1 (Div. 1)	French 1 (Div. 1 & 2) German 1 (Div. 2)	Mathematics 1 (Div. 1 & 2)	Mathematics 1 (Div. 1 & 2)	

FIRST SEMESTER

‡ Divisions for English 1, German 1, Mathematics 1 and Military Science 1 will be made by the Elective Committee. Divisions for Drawing 1a and Shopwork 1a will be made by agreement of instructors concerned. Hours for Mathematics 2 will be arranged by instructor.

† Drawing 1a and Shopwork 1a alternate on Wednesdays.

†ENGINEERING COURSES—FRESHMAN YEAR

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	German 2 (Div. 1) Military Sci. 2 (Div. 2)	English 2 (Div. 1)	Chemistry 2 (Div. 1 & 2)	Drill 2 (Div. 1 & 2)	†Chemistry 4 (Div. 1) (First nine weeks) †Drawing 2b (Div. 2) (First nine weeks) Mathematics 4 (Div. 1 & 2) (Last eight weeks)
Tuesday.....	†Drawing 2a (Div. 1) English 2 (Div. 2)	†Drawing 2a (Div. 1) French 2 (Div. 1 & 2) German 2 (Div. 2)	†Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 1) (First nine weeks)	†Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 2) (First nine weeks) Military Sci. 2 (Div. 1)	†Chemistry 4 (Div. 1) (First nine weeks) †Drawing 2b (Div. 2) (First nine weeks) Mathematics 4 (Div. 1 & 2) (Last eight weeks)
Wednesday.....	†Drawing 2b (Div. 2) (First nine weeks) German 2 (Div. 1)	†Drawing 2b (Div. 2) (First nine weeks) English 2 (Div. 1)	†Drawing 2b (Div. 2) (First nine weeks) Mathematics 3 (Div. 1) (First nine weeks)	Mathematics 3 (Div. 2) (First nine weeks)	†Chemistry 4 (Div. 1) (First nine weeks) Mathematics 4 (Div. 1 & 2) (Last eight weeks) †Shopwork 2 (Div. 2) (First nine weeks)
Thursday.....	†Drawing 2a (Div. 1) English 2 (Div. 2)	†Drawing 2a (Div. 1) French 2 (Div. 1 & 2) German 2 (Div. 2)	†Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 1 & 2) (First nine weeks)	†Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 1 & 2) (First nine weeks)	†Chemistry 4 (Div. 1) (First nine weeks) Mathematics 4 (Div. 1 & 2) (Last eight weeks) †Shopwork 2 (Div. 2) (First nine weeks)
Friday.....	†Drawing 2b (Div. 2) (First nine weeks) German 2 (Div. 1)	†Drawing 2b (Div. 2) (First nine weeks) English 2 (Div. 1)	Chemistry 2 (Div. 1 & 2)	Drill 2 (Div. 1 & 2)	†Chemistry 4 (Div. 1) (First nine weeks) Mathematics 4 (Div. 1 & 2) (Last eight weeks) †Shopwork 2 (Div. 2) (First nine weeks)
Saturday.....	†Drawing 2a (Div. 1) English 2 (Div. 2)	†Drawing 2a (Div. 1) French 2 (Div. 1 & 2) German 2 (Div. 2)	†Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 1 & 2) (First nine weeks)	†Drawing 3 (Div. 2) (Last eight weeks) Mathematics 3 (Div. 1 & 2) (First nine weeks)	

†Divisions for English 2, German 2, Mathematics 3, and Military Science 2 will be made by the Elective Committee.

† For Divisions in these subjects, see note at bottom of page 48.

CHEMICAL ENGINEERING COURSE—SOPHOMORE YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	Drill 3	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
Tuesday	Mathematics 5	Physics 1 Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	†Physics 1 Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)	German 3	Chemistry 5. (First five weeks) Chemistry 10 (Last twelve weeks)
Wednesday	Mathematics 5	Mathematics 5	Physics 1	German 3	Chemistry 5 (First five weeks) Chemistry 10 (Last twelve weeks)
Thursday	Mathematics 5	Mathematics 5	Physics 1	German 3	Drawing 7
Friday	Mathematics 5	Mathematics 5	Military Sci. 3	Drill 3	Drawing 7
Saturday	Mathematics 5	Mathematics 5	Physics 1	German 3	
SECOND SEMESTER					
Monday		Chemistry 6		Drill 4	Chemistry 11
Tuesday	Mathematics 6	Chemistry 6	Physics 2	German 4	Chemistry 11
Wednesday	Mathematics 6	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
Thursday	Mathematics 6	Chemistry 6	Physics 2	German 4	Chemistry 11
Friday	Mathematics 6	Mathematics 6	Military Sci. 4	Drill 4	Chemistry 11
Saturday	Mathematics 6	Mathematics 6	Physics 2	German 4	

† This hour may be used in place of the hour scheduled on Tuesday.

CHEMICAL ENGINEERING COURSE—JUNIOR YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Physics 6	Chemistry 19	Machine Design 3	Drill 5	Physics 6
Tuesday.....	Chemistry 7	Chemistry 21	Chemistry 11	Chemistry 12	Chemistry 12
Wednesday.....	Chemistry 7	Chemistry 19	Machine Design 3	Chemistry 12	Chemistry 12
Thursday.....	Machine Design 3	Chemistry 21	Chemistry 8	Chemistry 8	Chemistry 8
Friday.....	Chemistry 12	Chemistry 12	Chemistry 12	Drill 5	Chemistry 8
Saturday.....		Machine Design 3		†Military Sci. 5	

SECOND SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Geology 1	Geology 1	Machine Design 5	Drill 6	Chemistry 13
Tuesday.....	Machine Design 5		Chemistry 20	Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 13
Wednesday.....	Machine Design 5	Chemistry 13	Chemistry 13	Chemistry 13	Physics 7
Thursday.....	Chemistry 13	Chemistry 13	Chemistry 20	Chemistry 14 Chemistry 15 Chemistry 22	Physics 7
Friday.....	Geology 1	Geology 1	Physics 7	Drill 6	Physics 7
Saturday.....	Chemistry 13	Chemistry 13	Machine Design 5	Chemistry 14 Chemistry 15 Chemistry 22 †Military Sci. 6	

† Not a required subject.

CHEMICAL ENGINEERING COURSE—SENIOR YEAR

FIRST SEMESTER					P. M.	
Day					11-12	
Monday.....					†Drill 7 †Chemistry 23	Chemistry 23
Tuesday.....					Elect. Eng. 21	Chemistry 23
Wednesday.....					Mech. Eng. 7	Chemistry 23
Thursday.....					Chemistry 23	Chemistry 23
Friday.....					†Drill 7 †Chemistry 23	Chemistry 23
Saturday.....					Chemistry 16	

SECOND SEMESTER					P. M.	
Day					11-12	
Monday.....					†Drill 8 †Chemistry 24	Chemistry 24
Tuesday.....					Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 24
Wednesday.....					Chemistry 24	Chemistry 24
Thursday.....					Chemistry 14 Chemistry 15 Chemistry 22	Chemistry 24
Friday.....					†Drill 8 †Chemistry 24	Chemistry 24
Saturday.....					Chemistry 14 Chemistry 15 Chemistry 22	

† Hours to be arranged for students electing Military Science 7 and 8.

‡ Not a required subject.

ELECTRICAL AND MECHANICAL ENGINEERING COURSES—SOPHOMORE YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday	Military Sci. 3	Machine Design 1	Physics 1 (Div. 1)	Drill 3	Chemistry 4 (Div. 2) Shopwork 3 (Div. 1)
Tuesday	Mathematics 5	Physics 1 (Div. 2)	†Physics 1 (Div. 1 & 2)	German 3	Chemistry 4 (Div. 2) Shopwork 3 (Div. 1)
Wednesday	Mathematics 5	Machine Design 1		Physics 1 (Div. 1)	Drawing 5 (Div. 1) (First eight weeks) Chemistry 4 (Div. 2)
Thursday	Mathematics 5	Mathematics 5	Physics 1 (Div. 1 & 2)	German 3	Drawing 5 (Div. 1) (First eight weeks) Drawing 6a Drawing 6b
Friday	Mathematics 5	Machine Design 1	Military Sci. 3	Drill 3	Drawing 5 (Div. 1) (First eight weeks) Drawing 6a (Last nine weeks) Drawing 6b
Saturday	Mathematics 5	Mathematics 5	Physics 1 (Div. 1 & 2)	German 3	
SECOND SEMESTER					
Monday	Machine Design 2a Machine Design 2b	Machine Design 2a Machine Design 2b	Machine Design 2a Machine Design 2b	Drill 4	Shopwork 4
Tuesday	Mathematics 6	Machine Design 2a Machine Design 2b	Physics 2 (Div. 1 & 2)	German 4	Shopwork 4
Wednesday	Mathematics 6	Machine Design 2a Machine Design 2b	Military Sci. 4 (Div. 1)	Physics 2 (Div. 2)	Drawing 8 Shopwork 4
Thursday	Mathematics 6	Physics 2 (Div. 1)	†Physics 2 (Div. 1 & 2)	German 4	Drawing 8
Friday	Mathematics 6	Mathematics 6	Military Sci. 4 (Div. 2)	Drill 4	Drawing 8
Saturday	Mathematics 6	Mathematics 6	Physics 2 (Div. 1 & 2)	German 4	

† This hour may be used in place of the hours scheduled on Monday and Tuesday.

ELECTRICAL ENGINEERING COURSE—JUNIOR YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Physics 4	Elect. Eng. 1	Machine Design 3	Drill 5	Machine Design 4
Tuesday.....		Machine Design 4	Machine Design 4	Machine Design 4	Mech. Eng. 9
Wednesday.....		Elect. Eng. 1	Machine Design 3	Mech. Eng. 7	Physics 4
Thursday.....	Machine Design 3	Machine Design 4	Machine Design 4	Machine Design 4	Physics 4
Friday.....		Mech. Eng. 7	Elect. Eng. 1	Drill 5	Shopwork 9
Saturday.....	Mech. Eng. 7	Machine Design 3	Mech. Eng. 9	†Military Sci. 5 Physics 4	
SECOND SEMESTER					
Monday.....	†Elect. Eng. 6	Elect. Eng. 2	Machine Design 5	Drill 6	Physics 5
Tuesday.....	Machine Design 5	Shopwork 10	Shopwork 10	Shopwork 10	Physics 5
Wednesday.....	Machine Design 5	Elect. Eng. 2	Mech. Eng. 8	Physics 5	Physics 5
Thursday.....	Elect. Eng. 4	Elect. Eng. 4	Elect. Eng. 4	Mech. Eng. 8	Mech. Eng. 10
Friday.....	Mech. Eng. 10	Mech. Eng. 8	Elect. Eng. 2	Drill 6	Elect. Eng. 4
Saturday.....			Machine Design 5	†Military Sci. 6	

† Not a required subject.

ELECTRICAL ENGINEERING COURSE—SENIOR YEAR

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Elect. Eng. 15		Mech. Eng. 11	†Drill 7	Mech. Eng. 13
Tuesday.....	Mech. Eng. 12		Elect. Eng. 11	Elect. Eng. 13	Elect. Eng. 15
Wednesday.....	Mech. Eng. 13	Mech. Eng. 11	Elect. Eng. 11		
Thursday.....	Mech. Eng. 12	Elect. Eng. 11	Mech. Eng. 11	Elect. Eng. 13	Elect. Eng. 15
Friday.....			Mech. Eng. 11	†Drill 7	
Saturday.....	†Elect. Eng. 23	Elect. Eng. 11		‡Military Sci. 7	

FIRST SEMESTER

Monday.....	Mech. Eng. 19	Elect. Eng. 12	Elect. Eng. 18	†Drill 8	Elect. Eng. 18
Tuesday.....		Political Sci. 1	Elect. Eng. 25	Elect. Eng. 16	Elect. Eng. 16
Wednesday.....	Elect. Eng. 18	Elect. Eng. 18	Elect. Eng. 12	Mech. Eng. 19	Elect. Eng. 25
Thursday.....		Political Sci. 1		Elect. Eng. 25	Elect. Eng. 16
Friday.....		Elect. Eng. 12	Mech. Eng. 19	†Drill 8	Elect. Eng. 18
Saturday.....	Elect. Eng. 12	Political Sci. 1		‡Military Sci. 8	

SECOND SEMESTER

† Not a required subject.

MECHANICAL ENGINEERING COURSE—JUNIOR YEAR

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Physics 4	Elect. Eng. 1	Machine Design 3	Drill 5	Physics 4
Tuesday.....		Machine Design 4	Machine Design 4	Machine Design 4	Physics 4
Wednesday.....		Elect. Eng. 1	Machine Design 3	Mech. Eng. 7	Shopwork 9
Thursday.....	Machine Design 3	Machine Design 4	Machine Design 4	Machine Design 4	Machine Design 4
Friday.....		Mech. Eng. 7	Elect. Eng. 1	Drill 5	Mech. Eng. 9
Saturday.....	Mech. Eng. 7	Machine Design 3	Mech. Eng. 9	†Military Sci. 5 Physics 4	

Day	8-9	9-10	10-11	11-12	P. M.
Monday.....	Machine Design 6	Elect. Eng. 2	Machine Design 5	Drill 6	Machine Design 6
Tuesday.....	Machine Design 5	†Shopwork 10	†Shopwork 10	†Shopwork 10	Mech. Eng. 10
Wednesday.....	Machine Design 5	Elect. Eng. 2	Mech. Eng. 8	Physics 5	Physics 5
Thursday.....	Machine Design 6	Machine Design 6	Machine Design 6	Mech. Eng. 8	Physics 5
Friday.....	Mech. Eng. 10	Mech. Eng. 8	Elect. Eng. 2	Drill 6	Physics 5
Saturday.....	Elect. Eng. 17	Elect. Eng. 17	Machine Design 5	†Military Sci. 6	

Not a required course.

MECHANICAL ENGINEERING COURSE—SENIOR YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	10-12	P. M.
Monday.....	Mech. Eng. 15	Elect. Eng. 19	Mech. Eng. 11	†Drill 7	Mech. Eng. 13
Tuesday.....	Mech. Eng. 12	Mech. Eng. 15	Mech. Eng. 15	Mech. Eng. 15	Mech. Eng. 15
Wednesday.....	Mech. Eng. 13	Mech. Eng. 11		Elect. Eng. 19	
Thursday.....	Mech. Eng. 12	Mech. Eng. 15	Mech. Eng. 11		
Friday.....		Elect. Eng. 19	Mech. Eng. 11	†Drill 7	Elect. Eng. 24
Saturday.....	Elect. Eng. 23	Mech. Eng. 15	Mech. Eng. 15	Mech. Eng. 15	

SECOND SEMESTER					
Day	8-9	9-10	10-11	10-12	P. M.
Monday.....	Mech. Eng. 19		Elect. Eng. 20	†Drill 8	Thesis
Tuesday.....	Political Sci. 1	Mech. Eng. 17	Mech. Eng. 14		Thesis
Wednesday.....	Elect. Eng. 20		Mech. Eng. 16	Mech. Eng. 19	Mech. Eng. 14
Thursday.....	Political Sci. 1	Thesis	Thesis	Thesis	Mech. Eng. 16
Friday.....	Mech. Eng. 16	Mech. Eng. 16	Mech. Eng. 19	†Drill 8	Mech. Eng. 16
Saturday.....	Political Sci. 1	Mech. Eng. 17			

† Not a required course.

EXAMINATIONS—FIRST SEMESTER
SENIORS, JUNIORS, SOPHOMORES, FRESHMEN

	Thursday, January 26	Friday, January 27	Saturday, January 28	Monday, January 30	Tuesday, January 31
8 to 10 A. M.	Dairying 1 Chemistry 7 Horticulture 1 Latin 1 Latin 3	Agronomy 1 Elect. Eng. 13 German 1 Zoology 8	Animal Husb. 1 History 1 History 3 Mech. Eng. 12	Elect. Eng. 1 History 5 History 11 Military Sci. 1	Elect. Eng. 19 French 5 Military Sci. 3 Physics 4
10 to 12 A. M.	Elect. Eng. 11 English 3 Horticulture 9 Political Sci. 3	German 3 German 13 Horticulture 8	Agronomy 3 Elect. Eng. 23 French 3 Military Sci. 7	Animal Husb. 7 Elect. Eng. 21 Philosophy 4	French 1 Geology 3 Military Sci. 5 Philosophy 1
1.30 P. M.	English 1 Mathematics 5 Mech. Eng. 9 Political Sci. 2	Botany 1 Botany 6 Botany 9 History 7 Machine Design 3 Mathematics 7 Mech. Eng. 11	Horticulture 4 Mathematics 2 Mech. Eng. 7 Meteorology 1 Philosophy 7 Zoology 3	Chemistry 1 Forestry 1 Machine Design 1 Mech. Eng. 15 Spanish 1	Chemistry 21 Machine Design 4 Mathematics 1 Mech. Eng. 13 Physics 1 Zoology 1

Examinations in subjects not scheduled are arranged by instructors.

EXAMINATIONS—SECOND SEMESTER

SENIORS

	Saturday, June 3	Monday, June 5	Tuesday, June 6
8 to 10 A. M.	Elect. Eng. 20 Elect. Eng. 22 German 14 Horticulture 12 Horticulture 13	Agronomy 6 Agronomy 7 Chemistry 24 Mech. Eng. 16	English 6 French 6 Horticulture 6
10 to 12 A. M.	Chemistry 22 Mathematics 9 Mech. Eng. 14	Elect. Eng. 25 English 7 History 6	Horticulture 14 Philosophy 5 Political Sci. 1
1.30 P. M.		Botany 6 Botany 9 Chemistry 14 Elect. Eng. 12 Horticulture 10 Mech. Eng. 17 Philosophy 3	Animal Husb. 2 Chemistry 15 Mech. Eng. 19 Political Sci. 4 Political Sci. 5

Examinations in subjects not scheduled are arranged by instructor. Senior examinations begin upon the last Saturday but one of the term.

EXAMINATIONS—SECOND SEMESTER

JUNIORS, SOPHOMORES, FRESHMEN

	Wednesday, June 7	Thursday, June 8	Friday, June 9	Saturday, June 10	Monday, June 12
8 to 10 A. M.	Elect. Eng. 6 German 2 Horticulture 5	Dairying 3 Horticulture 2 Latin 2 Latin 4 Mech. Eng. 1	Agronomy 2 History 2 History 4	Animal Husb. 6 Physics 5 Chemistry 25	Animal Husb. 3 Philosophy 2
10 to 12 A. M.	Horticulture 3 Spanish 2	Botany 2 Mech. Eng. 10	Botany 5 Botany 10 Physics 6	French 2 English 4	Chemistry 6 Zoology 2 Zoology 6 Zoology 7
1.30 P. M.	Horticulture 7 German 4 Machine Design 5 Military Sci. 2	Geology 1 Machine Design 6 Mathematics 4 Mathematics 6	Chemistry 2 French 4 Geology 2 Mech. Eng. 8 Military Sci. 4		Animal Husb. 4 Elect. Eng. 2 English 2 Mathematics 8 Physics 2

Examinations in subjects not scheduled are arranged by instructors. These examinations end upon the Monday before Commencement.

TWO-YEAR COURSE IN AGRICULTURE.

This course was established by the State Legislature in 1895, and provides an opportunity to secure a training for their life work for those students who do not have the time, money or preparation to take a four-year college course.

The course is especially arranged and suited for the young, bright boys of the farm, who expect to make a business of some line of agricultural or horticultural work. Although it is open to students who have had no previous training on the farm, the entrance of such is not encouraged because of their lack of practical experience. By independent work and close application, however, inexperienced students sometimes pass the course with credit.

The year's work closes the first week in May, so as to enable the students to get home for the spring work on the farm or to accept other positions for the summer. This short school year also permits of more than four months' time for those students who are dependent upon their own resources to earn money for the following year.

The courses of study and the classes of the two-year course are entirely separate and distinct from those of the four-year courses. The work of the first year is largely preparatory, being a study of the sciences underlying agriculture, together with some elementary agricultural and horticultural work. The second year contains optional studies so that it is possible for students to specialize in animal husbandry dairying, or horticulture. Ten hours per week on the average are spent in practical work on the farm, in the barn, greenhouses or shops.

ADMISSION.

The course is open to those who can pass a fair and reasonable examination in reading, spelling, writing, arithmetic, English grammar, geography and history of the United States. Applicants, unless over eighteen years of age, who do not bring high school or other satisfactory certificates to show their proficiency in these subjects, will be given an entrance examination on Tuesday afternoon and Wednesday morning of the opening week of college. Applicants who are over eighteen years of age will be admitted without examination.

EXPENSES.

The expenses of the course will vary with the tastes and frugality of the students and the kind of accommodations which they secure. The total average expense for the year, if the student holds a scholarship, is not far from \$250. Many students, by working for their board or room rent, or by doing various kinds of work about the college or village, are able to go through the year with a cash outlay not exceeding \$150.

OPENING.

The course opens Wednesday, September 14, 1910, and closes Wednesday, May 3, 1911. A Christmas vacation of two weeks will be given.

CERTIFICATES.

No degree is given at the end of the course, but a certificate of graduation is issued upon the completion of it or its equivalent.

DESCRIPTION OF STUDIES.

AGRONOMY.

PROF. TAYLOR, MR. SLATE.

31. Elementary Agriculture.

Text-book and recitations upon the elementary principles of agriculture, including a study of the soil and the plant, and their relations to each other. For Two-Year Agricultural Students, First Year. First nine weeks. *Three exercises per week. 1st S.*

32. Farm Equipment and Farm Crops.

This course is similar to Agronomy 1, although less detailed. For Two-Year Agricultural Students, Second Year. *Three exercises per week. 1st S.*

33. Soils and Soil Physics.

This course is similar to Agronomy 2, but involves less mathematics and physics. For Two-Year Agricultural Students, Second Year. *Three exercises per week. 2d S.*

34. Manures and Fertilizers.

Text-book and recitations upon the constituents of farm manures and chemical fertilizers, the care and application of manures, the home-mixing of fertilizers and the modifications required by different soils and crops. For Two-Year Agricultural Students, Second Year. *Two exercises per week. 2d S.*

ANIMAL HUSBANDRY.

ASSOC. PROF. ARKELL, ASST. PROF. ECKMAN.

***30. Types and Breeds of Live Stock.**

A study of the breeds of live stock, with practical demonstrations in judging the different breeds. For Two-Year Agricultural Students, First Year. Last eight weeks. *Three exercises per week. 1st S.*

***31. Types and Breeds of Live Stock.**

Continuation of Animal Husbandry 30. For Two-Year Agricultural Students, Second Year. *Three exercises per week. 1st S.*

*Animal Husbandry 30 and 31 are similar to Animal Husbandry 1.

32. Sheep Raising.

Lectures and recitations upon the breeds of sheep; adaptability to this section; care and management; fitting for the shows and feeding for market purposes; the raising of hot house lambs. Also practical exercises in judging the various breeds. Elective for Two-Year Agricultural Students, Second Year. *Three exercises per week. 1st S.*

33. Feeds and Feeding.

Similar to Animal Husbandry 3. For Two-Year Agricultural Students, Second Year. *Three exercises per week. 2d S.*

34. Principles of Breeding.

Similar to Animal Husbandry 2. Elective for Two-Year Agricultural Students, Second Year. *Three exercises per week. 2d S.*

35. Veterinary Science.

Similar to Animal Husbandry 4. Elective for Two-Year Agricultural Students, Second Year. *Three exercises per week. 2d S.*

36. Poultry.

Similar to Animal Husbandry 5. Elective for Two-Year Agricultural Students, Second Year. *Two exercises per week. 1st S.*

BOTANY.

PROF. BROOKS, MISS BLACK.

31. Elements of Botany. Miss Black.

A general view of the life processes and structure of plants, followed by the study in detail of a few type forms. Recitations and laboratory work. For Two-Year Agricultural Students, First Year.

Three exercises per week. 1st S.

32. Plant Diseases. Prof. Brooks, Miss Black.

A study of the more important fungous diseases and their prevention. Lectures, recitations and laboratory work. For Two-Year Agricultural Students, First Year.

Open only to students who have completed Botany 1.

Three exercises per week. 2d S.

CHEMISTRY.**31. Elementary Applications.**

An elementary course, with special reference to the elements of plant food, composition of fertilizers, elements subject to exhaustion in soils, etc. For Two-Year Agricultural Students, First Year.

Two exercises per week. 2d S.

DAIRYING.

PROF. RASMUSSEN.

31. Milk and Milk Testing.

Lectures and recitations on the secretion, composition and properties of milk, the Babcock test and lactometer. Comparative study of different systems of creaming and different factors influencing the efficiency of the hand separator. For Two-Year Agricultural Students, First Year. *Three exercises per week. 2d S.*

32. Butter Making.

This includes pasteurization, commercial starters, cream ripening, churning, marketing and scoring butter. Elective for Two-Year Agricultural Students, Second Year. *Three exercises per week. 1st S.*

33. Technology of Milk.

Same as Course 3. Elective for Two-Year Agricultural Students, Second Year. *Two exercises per week. 2d S.*

DRAWING.**31. For Two-Year Agricultural Students, Second Year.***One exercise per week. 1st S.***ENGLISH.**

ASST. PROF. DAVID.

31. Grammar and Elementary Composition.

For Two-Year Agricultural Students, First Year.

*Three exercises per week. 1st S.***32. Grammar and Composition.**

This is a continuation of English 31. For Two-Year Agricultural Students, First Year.

*Open only to students who have completed English 31.**Three exercises per week. 2d S.***FORESTRY.**

PROF. PICKETT.

31. Farm Forestry.

Method of reproduction, seed collecting, thinning, determination of heights, contents and increment of forest trees. For Two-Year Agricultural Students, First Year.

Two exercises per week. 2d S.

HORTICULTURE.

PROF. PICKETT, MR. LUMSDEN, MR. WOLFF, MR. GARDNER.

31. Vegetable Gardening. Mr. Gardner.

A study of the commercial methods of vegetable growing. Special attention is given to the home garden. For Two-Year Agricultural Students, First Year. *Three exercises per week. 1st S.*

32. Fruit Growing. Mr. Wolff.

This course embraces a study of commercial orcharding; each fruit being studied with reference to planting, cultivating, pruning, fertilizing, picking, packing, storing and marketing. For Two-Year Agricultural Students, Second Year. *Three exercises per week. 1st S.*

33. Greenhouse Management. Mr. Lumsden.

Combined lecture, demonstration and laboratory course in greenhouse management. Elective for Two-Year Agricultural Students, Second Year. *Three exercises per week. 1st S.*

34. Home Decoration. Mr. Lumsden.

A study of ornamental trees, shrubs and flowers; their culture, proper arrangement and decorative value, with special reference to home surroundings. Elective for Two-Year Agricultural Students, Second Year. *Three exercises per week. 2d S.*

MATHEMATICS.

MR. SLATE.

31. Arithmetic and Bookkeeping.

A review of arithmetic, the first twelve weeks, and farm bookkeeping, the last six weeks. For Two-Year Agricultural Students, First Year. *Three exercises per week. 1st S.*

MILITARY SCIENCE AND TACTICS.

LIEUT. EDGERLY.

DRILL.**31. Military Drill.**

For Two-Year Agricultural Students, First Year.

Two exercises per week. 1st S.

32. Military Drill.

For Two-Year Agricultural Students, First Year.

Two exercises per week. 2d S.

33. Military Drill.

For Two-Year Agricultural Students, Second Year.

Two exercises per week. 1st S.

34. Military Drill.

For Two-Year Agricultural Students, Second Year.

Two exercises per week. 2d S.

MILITARY SCIENCE.**31. Infantry Drill Regulations.**

Practical instruction and lectures. For Two-Year Agricultural Students, First Year. *One exercise per week. 1st S.*

32. Manual of Guard Duty and Small Arms Firing Regulations.

Practical instruction and lectures. For Two-Year Agricultural Students, First Year.

Open only to students who have completed Military Science 31.

One exercise per week. 2d S.

33. Field Service Regulations.

For Two-Year Agricultural Students, Second Year.

Open only to students who have completed Military Science 32.

One exercise per week. 1st S.

34. Field Service Regulations.

Lectures on advance guards, outposts, etc. Continuation of Military Science 33. For Two-Year Agricultural Students, Second Year.

Open only to students who have completed Military Science 33.

One exercise per week. 2d S.

PHYSICS.

PROF. NESBIT.

31. Elementary Physics.

For Two-Year Agricultural Students, Second Year.

Four exercises per week. 1st S.

SHOP WORK.**31. Wood Work. Mr. Little.**

For Two-Year Agricultural Students, First Year.

Two exercises per week. 2d S.

32. Iron Work. Mr. Tonkin.

For Two-Year Agricultural Students, Second Year.

Two exercises per week. 2d S.

ZOOLOGY.**31. Human Physiology and Hygiene.**

A study of the structure, physiology and care of the human body. Special attention will be given to the fundamental principles of Zoölogy, the nature of parasitic and bacterial diseases and the means of prevention. For Two-Year Agricultural Students, First Year.

Three exercises per week. 1st S.

32. Entomology.

The structure, habits and classification of insects, with special consideration of injurious pests and the means of controlling them. For Two-Year Agricultural Students, First Year.

Three exercises per week. 2d S.

33. Special Zoology.

This course will be arranged to meet the needs of Two-Year Students who wish to elect Zoölogy during the second year. Students are requested to see the instructor before electing this course.

Three exercises per week. 1st S.

34. Special Zoology.

Continuation of Zoölogy 33.

Three exercises per week. 2d S.

COURSES OF STUDY AND SCHEDULE OF HOURS.**First Year.****FIRST SEMESTER.**

Credit Hours.

<i>Agronomy 31</i>	Elementary Agriculture (first nine weeks).....	1½
<i>An. Husb. 30</i>	Types and Breeds of Live Stock (Last eight weeks).....	1½
<i>Botany 31</i>	Elements of Botany.....	3
<i>English 31</i>	Grammar and Elementary Composition.....	3
<i>Horticulture 31</i>	Vegetable Gardening.....	3
<i>Mathematics 31</i>	Mathematics and Bookkeeping ...	3
<i>Drill 31</i>	Military Drill.....	1
<i>Military Science 31</i>	Infantry Drill Regulations.....	1
<i>Zoölogy 31</i>	Human Physiology and Hygiene ..	3

SECOND SEMESTER.

<i>Botany 32</i>	Plant Diseases	3
<i>Chemistry 31</i>	Elementary Applications.....	2
<i>Dairying 31</i>	Milk and Milk Testing.....	3
<i>English 32</i>	Grammar and Composition.....	3
<i>Forestry 31</i>	Farm Forestry.....	2
<i>Drill 32</i>	Military Drill.....	1
<i>Military Science 32</i>	Manual of Guard Duty.....	1
<i>Shop Work 31</i>	Wood Work.....	2
<i>Zoölogy 32</i>	Entomology.....	3

Second Year.**FIRST SEMESTER.**

<i>Agronomy 32</i>	Farm Equipment and Farm Crops .	3
<i>An. Husb. 31</i>	Types and Breeds of Livestock.....	3
<i>*An. Husb. 32</i>	Sheep Raising.....	3
<i>*An. Husb. 36</i>	Poultry.....	2
<i>*Dairying 32</i>	Butter Making.....	3
<i>Drawing 31</i>	.....	1

*Elective. Elect courses to make a total of at least 18 hours.

<i>Horticulture 32</i>	Fruit Growing.....	3
* <i>Horticulture 33</i>	Greenhouse Management.....	3
<i>Drill 33</i>	Military Drill.....	1
<i>Military Science 33</i>	Field Service Regulations.....	1
<i>Physics 31</i>	Elementary Physics.....	4
* <i>Zoölogy 33</i>	Special Zoölogy.....	3

SECOND SEMESTER.

<i>Agronomy 33</i>	Soils and Soil Physics.....	3
<i>Agronomy 34</i>	Manures and Fertilizers.....	2
<i>An. Husb. 33</i>	Feeds and Feeding.....	3
* <i>An. Husb. 34</i>	Principles of Breeding.....	3
* <i>An. Husb. 35</i>	Veterinary Science.....	3
* <i>Dairying 33</i>	Technology of Milk.....	2
* <i>Forestry 32</i>	Aboriculture and Forestry.....	3
* <i>Horticulture 34</i>	Home Decoration.....	3
<i>Drill 34</i>	Military Drill.....	1
<i>Military Science 34</i>	Field Service Regulations.....	1
<i>Shop Work 32</i>	Iron Work.....	2
* <i>Zoölogy 34</i>	Special Zoölogy.....	3

*Elective. Elect courses to make a total of at least 18 hours.

TWO-YEAR COURSE IN AGRICULTURE—FIRST YEAR

FIRST SEMESTER						SECOND SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.	Day	8-9	9-10	10-11	11-12	P. M.
Monday	English 31	Agronomy 31 (First nine weeks)	Mathematics 31	Drill 31	Horticulture 31 Botany 31 (Div. 1) Zoölogy 31 (Div. 2)	Monday	English 32	Chemistry 31 Botany 32 (Div. 1) Shop 31 (Div. 2)	Forestry 31 Botany 32 (Div. 1) Shop 31 (Div. 2)	Drill 32	Botany 32 (Div. 2) Shop 31 (Div. 1)
Tuesday		Military Sci. 31 Agronomy 31 (First nine weeks) An. Husb. 30 (Last eight weeks)	Horticulture 31	Botany 31 (Div. 1 & 2)		Tuesday	English 32 Dairying 31 (Div. 1) Zoölogy 32 (Div. 2)	Chemistry 31 Dairying 31 (Div. 1) Zoölogy 32 (Div. 2)	Botany 32 (Div. 1) Shop 31 (Div. 2)	Botany 32 (Div. 1) Zoölogy 32 (Div. 2)	Forestry 31 Dairying 31 (Div. 2) Zoölogy 32 (Div. 1)
Wednesday	English 31		Mathematics 31	Zoölogy 31 (Div. 1 & 2)	Zoölogy 31 (Div. 1)	Wednesday	English 32	Military Sci. 32 Dairying 31 (Div. 2) Zoölogy 32 (Div. 1)	Botany 32 (Div. 1 & 2) Dairying 31 (Div. 2) Zoölogy 32 (Div. 1)	Botany 32 (Div. 2) Shop 31 (Div. 1)	
Thursday		Horticulture 31 Agronomy 31 (First nine weeks) An. Husb. 30 (Last eight weeks)		Zoölogy 31 (Div. 1 & 2)	Botany 31 (Div. 1)	Thursday	English 32 Dairying 31 (Div. 2) Zoölogy 32 (Div. 1)		Botany 31 (Div. 1 & 2) Dairying 31 (Div. 2) Zoölogy 32 (Div. 1)	Drill 32	Botany 32 (Div. 2) Shop 31 (Div. 1)
Friday	English 31 An. Husb. 30 (Last eight weeks)		Mathematics 31	Drill 31	Botany 31 (Div. 2)	Friday	English 32		Botany 31 (Div. 1 & 2) Dairying 31 (Div. 2) Zoölogy 32 (Div. 1)	Drill 32	Botany 32 (Div. 2) Shop 31 (Div. 1)
Saturday						Saturday					

TWO-YEAR COURSE IN AGRICULTURE—SECOND YEAR

FIRST SEMESTER					
Day	8-9	9-10	10-11	11-12	P. M.
Monday	*An. Husb. 32 *Horticulture 33	Horticulture 32	*Dairying 32	Drill 33	An. Husb. 31
Tuesday	*Dairying 32	*Dairying 32	Agronomy 32	Physics 31	*An. Husb. 36
Wednesday	*An. Husb. 32 *Horticulture 33	Horticulture 32	Physics 31	An. Husb. 31	Agronomy 32
Thursday	*An. Husb. 32	*An. Husb. 32	Agronomy 32	Physics 31	*Dairying 32 *Horticulture 33
Friday	Military Sci. 33	*An. Husb. 36	An. Husb. 31	Drill 33	Horticulture 32
Saturday	Drawing 31	Drawing 31	Drawing 31	Physics 31	
SECOND SEMESTER					
Monday	Agronomy 34	*Dairying 33	*Forestry 32	Drill 34	*An. Husb. 35
Tuesday	Military Sci. 34	*An. Husb. 35	Agronomy 33	*Horticulture 34	*Dairying 33 *Forestry 32
Wednesday	Agronomy 34	Shop 32	Shop 32	Shop 32	Agronomy 33
Thursday	*Horticulture 34	*An. Husb. 34 *Horticulture 34	Agronomy 33		An. Husb. 33
Friday	An. Husb. 33	*An. Husb. 35 *Forestry 32		Drill 34	*Horticulture 34 *An. Husb. 34
Saturday	An. Husb. 33	*An. Husb. 34	Shop 32	Shop 32	

* Elective.

TEN-WEEK COURSE IN DAIRYING OR DAIRY SCHOOL.

OPENING.

The Sixteenth Annual Dairy School of the New Hampshire College opens Thursday, January 5, and closes Friday, March 10. Students should present themselves for registration at Thompson Hall the first day of the session. Lectures and laboratory work will begin the following day.

ADMISSION.

The school is open to men and women sixteen years of age and upward. No entrance examination is required. However, in order to make the best use of the instruction, the student should have a good common school education. The experiences of previous years have shown that the subject in which the student is most deficient is arithmetic, especially percentage and decimals. Both of these divisions of arithmetic are used to a large extent in solving problems in the creamery and also in computing rations for the dairy cow. It is, therefore, well for those planning to take the dairy course to review these subjects before entering. To be most benefited by the school, the students should have had some practical experience on a farm or in a creamery.

EXPENSES.

A tuition of five dollars is payable on registering, at the beginning of the term; other expenses, including books, white suits, and room and board for ten weeks, amount to approximately sixty dollars.

CERTIFICATES.

Students completing the required work of the dairy school and passing satisfactory examinations, will be given certificates

PRIZES.

Through the courtesy of Mr. T. J. Davis, Duluth, Minn., three suitable prizes will be given to students who rank the highest in judging dairy cattle.

AGRONOMY.

PROF. TAYLOR, MR. SLATE.

50. Forage and Silage Crops.

This course will consist of ten lectures upon forage and silage crops which are suited to New Hampshire conditions. The matter of varieties, preparation of the ground, time of seeding, amount of seed, harvesting and storing will be discussed. Soiling crops, the construction of silos and the growing of crops for the silo will be treated in as much detail as the time allows. Laboratory periods in corn judging and in seed testing will be given.

51. Manures and Fertilizers.

This course will consist of eight lectures upon the constituents of farm manures and chemical fertilizers; the care and application of manure; the home mixing of fertilizers and the modifications for different soils and crops.

ANIMAL HUSBANDRY.

ASST. PROF. ECKMAN.

42. Breeds of Dairy Cattle.

Lectures and recitations upon the origin, history, distribution, characteristics, adaptability and standard of excellence of the pedigreed breeds of cattle, with special reference to the selection of breeds and of individual animals for the herd. The practical work will consist of scoring and judging representatives of the various breeds of dairy cattle, and in tracing pedigrees of animals in the herd books of the different breeds. Two lectures and one judging period per week.

44. Diseases of Cattle.

This course will consist of lectures and recitations upon the anatomy and physiology of the cow, with special reference to the digestive, reproductive and milk-producing organs. The common diseases, their causes and the methods of treatment will be discussed. Practice will also be given in fitting animals for the show ring.

45. Feeds and Feeding.

Lectures and recitations upon the composition and digestibility of feeding stuffs. A daily study of the different grains and feeds, and their value in a dairy ration. Practice will be given in computing rations for the dairy cow. *Three exercises per week.*

DAIRYING.

PROF. RASMUSSEN, MR. PIERPONT, MR. JUDKINS.

40. Butter Making.

Lectures and recitations on the different systems of creaming milk and a comparison of the efficiency of different cream separators under varying conditions; cream ripening; churning, washing, marketing and scoring of butter.

41. Dairy Bacteriology.

Lectures and demonstrations on the function of bacteria and the application of bacteriological principles to dairy work, such as pasteurization, cream ripening, commercial starters, and deterioration of butter.

42. Dairy Practice.

The equipment in the dairy building is such that the laboratory work can be made applicable both to farm and factory conditions. The student will have an opportunity to study construction and efficiency and operation of the various machines used in the handling of milk

and making of butter. The use of the Babcock test in apportioning the money value of milk is now regulated by state law, and the importance of the test in the successful management of the dairy herd has created a demand for more complete and practical training. The details of the test will be studied carefully, and the student will practise testing milk, cream, skim-milk and butter-milk until fully competent to perform the work for himself or for others.

43. Market Milk.

A study of the value of milk as a food and its relation to public health. The production and handling of market milk, and of certified milk. Commercial milk inspection. Exercise will be given in the scoring of milk and cream, and in the scoring of dairies.

44. Milk Testing.

This course will consist of a study of the composition, the physical and chemical properties of milk, the various methods of sampling and testing milk and cream, the testing of dairy herds and organizing and operating cow test associations.

NEW HAMPSHIRE AGRICULTURAL EXPERIMENT STATION.

Most of the Agricultural Experiment Stations of the various states, including that of New Hampshire, were founded in 1888 by an act of Congress, approved March 2, 1887, known as the Hatch Act, in honor of its author. This act appropriated fifteen thousand dollars (\$15,000) annually for the maintenance of an Agricultural Experiment Station in each state. This act provides:

"That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural and artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories." The

act also provides that the results of such work shall be published in bulletins and reports.

A further endowment of the Experiment Stations to provide specifically for research work was made by the Adams Act, passed by Congress and approved March 16, 1906, which provided an increased annual appropriation which amounts to \$15,000 for the current fiscal year. This appropriation is specifically limited to the "necessary expenses of conducting original researches or experiments," and the rulings of the United States Department of Agriculture, which is vested with the supervision of the expenditures under this act, require that this appropriation be spent in fundamental investigations or researches to determine the underlying causes and principles of agricultural science, rather than for mere experiments to secure results of immediate practical application as contemplated under the Hatch Act appropriation. The purposes of the two acts are therefore supplementary but distinct.

The New Hampshire Agricultural Experiment Station is organized as a department of the New Hampshire College of Agriculture and Mechanic Arts, and is administered by a Board of Control, elected by its Board of Trustees.

The publications of the Station comprise 148 bulletins of the regular series and seven circulars. The bulletins are issued at irregular intervals and are sent to all residents of New Hampshire requesting them. Back numbers will be sent as long as the supply lasts.

The Station is prepared to give advice and assistance to the farmers of New Hampshire along the following lines:

The maintenance of soil fertility, including the rotation of crops and the selection and use of manures and fertilizing materials.

The selection of varieties of grains, grasses and forage crops and methods of culture.

The selection of varieties of fruits and vegetables and the management of orchards.

The examination of seeds that are suspected of being unsound or adulterated; the identification of grasses, weeds and other plants; the prevention of fungous diseases of plants.

The identification of insects and the control of such as are injurious.

The feeding of animals, including calculation of rations and use of various feeding stuffs.

The methods of milk production, creamery and dairy methods and machinery and the scoring of dairy products.

The testing of milk to determine the value of dairy cows.

The planting and care of forest trees and the management of farm wood lots.

Any citizen of New Hampshire has the right to apply to the Station for such assistance as it can give, and all such requests will be given prompt attention.

COMMENCEMENT, 1910.

On Commencement Day, June 15, 1910, the following degrees were conferred:

BACHELORS OF SCIENCE.

Agriculture.

David Wadsworth Anderson, Manchester.
Lucian Holmes Burns, Milford.
Henry Thomas Converse, Amherst.
Harold Elwin Hardy, Hollis.
Edson Dana Sanborn, Fremont.
Charles Shannon Wright, Portsmouth.

Arts and Science.

Walter Sidney Abbott, Manchester.
Arthur Clyde Cotton, Alton.
Leonard Samuel Morrison, Penacook.
Henry Brown Philbrook, North Hampton.
Clyde Henry Swan, Keene.

Chemical Engineering.

Alfred Edward Blake, Nashua.
Orville Frank Bryant, Ashland.
Harry Percival Corliss, Wolfeboro.
Harry Peach Corson, Laconia.
Charles Edward Peel, Nashua.
Clement Linwood Perkins, Berwick, Me.

Electrical Engineering.

Frank Hartwell Bills, Reed's Ferry.
Edward Daniel French, South Hampton.
Walter Dennis Kidder, Manchester.
Haldimand Wentworth Neal, Dover.
Robert Abbott Neal, Dover.
Harold Clifford Read, Westport.
Theron Alberto Thorp, Exeter.
Burleigh Ray Wells, Somersworth.

Mechanical Engineering.

Edgar Herbert Burroughs, Sanbornville.
Wilbur Warren Burroughs, Sanbornville.
Fred Odell Chase, Waterloo.
George Burpee Hefler, Jackson.
Simes Thurston Hoyt, Newington.
Cheney Edison Lawrence, Nashua.
Raymond Brewster Scammon, Stratham.

Unclassified.

Dalton Boynton, Little Boar's Head.
Brenton William Proud, Manchester.

Certificates.

Andrew Winfred Benner, Gonic.
Channing Montford Jonathan Bickford, Rye Beach.
Wilfred Albro Osgood, Windham Depot.
Howard Weaver Sanborn, Sanbornton.
Bertram Eugene Graham Silver, Roxbury, Mass.
Percy Septimus Snow, Nashua.
Henry Leigh Stevens, Franklin.
Hugh Townsend, Lebanon.
Everett Cook Williams, Worcester, Mass.
Everett Wiswell, Colebrook.
Minot Walter Woods, Bath.

HONOR LIST FOR 1910.

SPECIAL HONOR.

Average of 90 for the Year's Work.

1910.

Walter Sidney Abbott,	Arts and Science Course.
Harry Percival Corliss,	Chemical Engineering Course.

1911.

Margaret DeMeritt,	Arts and Science Course.
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1913.

Donald Babcock Keyes,	Engineering Course.
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HONOR.

Average of 80 for the Year's Work.

1910.

David Wadsworth Anderson,	Agricultural Course.
Frank Hartwell Bills,	Electrical Engineering Course.
Alfred Edward Blake,	Chemical Engineering Course.
Lucian Holmes Burns,	Agricultural Course.
Henry Thomas Converse,	Agricultural Course.
Harry Peach Corson,	Chemical Engineering Course.
Edward Daniel French,	Electrical Engineering Course.
Simes Thurston Hoyt,	Mechanical Engineering Course.
Leonard Samuel Morrison,	Arts and Science Course.

Charles Edward Peel,
Raymond Brewster Scammon,
Theron Alberto Thorp,

Chemical Engineering Course.
Mechanical Engineering Course.
Electrical Engineering Course.

1911.

Albert Huckins Brown,
Arthur Samuel Colby,
Mariette Alice Drew,
Ralph Lewis Easterbrook,
Olive Estelle Hatch,
Henry Forrest Judkins,
Charles Willis Kemp,
Bret Pease,

Agricultural Course.
Agricultural Course.
Arts and Science Course.
Agricultural Course.
Arts and Science Course.
Agricultural Course.
Agricultural Course.
Electrical Engineering Course.

1912.

George Wesley Berry,
Lewis L. H. Bunker,
Philip Lewis Gowen,

Agricultural Course.
Electrical Engineering Course.
Chemical Engineering Course.

1913.

Robin Beach,
Don Warren Bissell,
Philip Cowell Jones,
Gilbert Frederic Lane,
John Christie Morgan,
Harold Forrest Peavey,
Alfred Leroy Richmond,
Harold Averill Robinson,
Hugh Townsend,
Perry Elliott Tubman,
Thomas James Twomey,
Lester Ray Whitaker,
Clayton Wight Work,

Engineering Course.
Engineering Course.
Engineering Course.
Engineering Course.
Engineering Course.
Engineering Course.
Engineering Course.
Engineering Course.
Agricultural Course.
Engineering Course.
Engineering Course.
Arts and Science Course.
Engineering Course.

Special Course.

George Filmore Roberts,

Agricultural Course.

PRIZE RECORD FOR 1910.

BAILEY PRIZE—\$10.

GIVEN BY DR. C. H. BAILEY OF THE CLASS OF '79, AND E. A. BAILEY
OF THE CLASS OF '85.

HARRY PERCIVAL CORLISS, Wolfeboro.

ERSKINE MASON MEMORIAL PRIZE.

ALFRED EDWARD BLAKE, Nashua.

CHASE-DAVIS MEMORIAL MEDALS.

Gold Medal.

WILBUR WARREN BURROUGHS, Sanbornville.

Silver Medal.

ROBERT ABBOTT NEAL, Dover.

SENIOR STANDING HIGHEST IN THE MILITARY
DEPARTMENT.

HARRY PEACH CORSON, Laconia.

WINNERS OF INDIVIDUAL PRIZE DRILL.

Gold Medal.

ALAN LEIGHTON, '12, Concord.

Silver Medal.

HAROLD AVERILL ROBINSON, '13, Elmwood.

HONORABLE MENTION.

CLAYTON WIGHT WORK, '13, Exeter.

PRIZE SWORD—EXCELLENCE IN DRILL.

CHARLES FARNUM WHITTEMORE, '11, Pembroke.

Honorable Mention.

ELDON EUGENE STARK, '11, Haverhill.

SENIORS REPORTED TO ADJUTANT-GENERAL, U. S. ARMY,
FOR APTITUDE IN DRILL.

HARRY PEACH CORSON, Laconia.

ROBERT ABBOTT NEAL, Dover.

FRED ODELL CHASE, Warner.

CHENEY EBEN LAWRENCE, Nashua.

COLOR COMPANY—FIRST SEMESTER.

COMPANY B.

VALENTINE SMITH SCHOLARSHIPS.

MARGARET DEMERITT, '11.

PHILIP L. GOWEN, '12.

GILBERT FREDERIC LANE, '13.

RAY WARREN COMBS, '14.

ROSTER OF BATTALION.

FOR 1910-'11.

COMMANDANT.

LIEUTENANT G. W. EDGERLY, Second United States Infantry.

CADET OFFICERS AND NON-COMMISSIONED OFFICERS.

Field and Staff.

MAJOR C. F. WHITTEMORE.

FIRST LIEUT. AND ADJT. L. E. PIERCE.

SECOND LIEUT. AND Q. M. C. H. ROBINSON.

SERGT. MAJOR H. R. TUCKER.

Q. M. SERGT. P. D. BUCKMINSTER.

COLOR SERGT. C. M. NEAL.

BAND.

CHIEF MUSICIAN H. W. SANBORN.

PRINCIPAL MUSICIAN R. E. LOVELL.

DRUM MAJOR H. C. HOLDEN.

Sergeants.

I. C. PERKINS.

J. B. PETTENGILL.

G. W. TOWLE.

A. M. BENNETT.

Corporals.

J. C. BODWELL.

P. C. JONES.

C. B. ADAMS.

P. A. FOSTER.

H. L. WHITTEMORE.

A. W. CHADBOURN.

Captain and Physical Instructor.

B. F. PROUD.

COMPANY A.

CAPT. P. J. BURBECK.

FIRST LIEUT. J. H. BATCHELDER.

SECOND LIEUT. S. DEMERITT.

FIRST SERGT. J. A. MANTER.

Sergeants.

L. L. H. BUNKER.

J. E. ROBINSON.

E. C. WILLIAMS.

A. J. LEIGHTON.

Corporals.

N. D. PAINE.

A. GRISWOLD.

D. A. ANDREW.

W. H. METZE.

J. E. LADD.

W. C. KROOK.

Musician.

A. G. DAVIS.

COMPANY B.

CAPT. E. E. STARK.

FIRST LIEUT. L. S. FOSTER.

SECOND LIEUT. A. LEIGHTON.

FIRST SERGT. G. W. BERRY.

Sergeants.

M. S. WATSON.

M. J. O'MALLEY.

M. P. BRADFORD.

D. B. KEYES.

Corporals.

B. WOODWARD.

S. SANBORN.

F. G. FISHER.

C. F. SCOTT.

P. M. PHILLIPS.

H. R. ROBINSON.

Musicians.

C. N. STETSON.

L. F. BROWN.

COMPANY C.

CAPT. R. E. CARPENTER.

FIRST LIEUT. R. C. MORGAN.

SECOND LIEUT. P. R. CROSBY.

FIRST SERGT. W. E. ROGERS.

Sergeants.

C. A. JENNINGS.

A. H. SAWYER.

W. H. QUIMBY.

P. C. GALE.

Corporals.

C. H. ROGERS.

V. E. LEAVITT.

T. J. TWOMEY.

A. G. WOOD.

H. B. CATLIN.

L. S. DREW.

Musician.

G. A. McPHERTERS.

STUDENTS.

a—Agricultural Course; *c*—Course in Chemical Engineering; *a* and *s*—Arts and Science Course; *m e*—Mechanical Engineering; *e e*—Electrical Engineering; *u*—Unclassified. Freshmen in the Engineering Courses and Sophomores in the Electrical and Mechanical Engineering Courses are designated by *e* only.

SENIORS.

Name.	Residence.
Arozian, Ohannes A. <i>c</i>	Nashua.
Bennett, Leland Wilson <i>e e</i>	Laconia.
Brown, Albert Huckins <i>a</i>	Strafford.
Brown, Charles Owen <i>c</i>	Concord.
Burbeck, Perry James <i>e e</i>	Haverhill.
Colby, Arthur Samuel <i>a</i>	Tilton.
DeMeritt, Margaret <i>a</i> and <i>s</i>	Durham.
Drew, Mariette Alice <i>a</i> and <i>s</i>	Colebrook.
Easterbrook, Ralph Lewis <i>a</i>	Dudley, Mass.
Gove, Willis Ansel <i>e e</i>	Laconia.
Hatch, Olive Estelle <i>a</i> and <i>s</i>	Dover.
Judkins, Henry Forrest <i>a</i>	Kingston.
Kemp, Charles Willis <i>a</i>	Kingston.
Little, Webb <i>a</i> and <i>s</i>	Campton.
Morrill, Winfred <i>e e</i>	Pike.
Nason, Carl Eastman <i>e e</i>	Concord.
Parker, Edward Gookin <i>c</i>	Portsmouth.
Pease, Bret <i>e e</i>	Ashland.
Pierce, Leonard Emerson <i>e e</i>	Worcester, Mass.
Proud, Benjamin Franklin <i>a</i> and <i>s</i>	Manchester.
Robinson, Charles Harrison <i>c</i>	Marlborough.
Scott, Bessie Amanda <i>a</i> and <i>s</i>	Tyson, Vt.
Stark, Eldon Eugene <i>e e</i>	Haverhill.
Towne, Ernest George <i>m e</i>	Plymouth.
Whittemore, Charles Farnum <i>c</i>	Pembroke.
Wilkins, Aaron Wallace <i>e e</i>	Amherst.

JUNIORS.

Name.	Residence.
Bachelder, John Hutchins <i>a</i> and <i>s</i>	Concord.
Bailey, Thomas Craig <i>a</i> and <i>s</i>	New Boston.
Berry, George Wesley <i>a</i>	Stratham.
Bradford, Maurice P. <i>e e</i>	Derry.
Buckminster, Paul D. <i>c</i>	Lee.
Bunker, Lewis L. H. <i>e e</i>	Durham.
Carpenter, Roy Elbert <i>a</i> and <i>s</i>	Medford, Mass.
Cole, Florence Viola <i>a</i> and <i>s</i>	Dover.
Crosby, Percy Raymond <i>e e</i>	Durham.
Davis, Arthur G. <i>a</i>	Peterborough.
Davison, Frank S. <i>a</i>	Durham.
DeMeritt, Stephen <i>e e</i>	Durham.
Donnelly, Edith G. <i>a</i> and <i>s</i>	Dover.
Drew, Lyle Stevens <i>e e</i>	Union.
Foster, Leland S. <i>e e</i>	Newport.

Name.	Residence.
Gowen, Philip Lewis <i>c</i>	<i>Stratham.</i>
Hayes, Bernice M. <i>a</i> and <i>s</i>	<i>Durham.</i>
Holden, Hiram Chester <i>c</i>	<i>Manchester.</i>
Jennings, Earle B. <i>e e</i>	<i>Winchester.</i>
Leighton, Alan <i>c</i>	<i>Concord.</i>
Leighton, Arthur John <i>m e</i>	<i>Laconia.</i>
Lowd, Clarence Mortimer <i>e e</i>	<i>Durham.</i>
McLucas, Charles Abraham <i>e e</i>	<i>Nashua.</i>
Manter, Jerauld A. <i>a</i> and <i>s</i>	<i>Manchester.</i>
Morgan, Ralph Clifford <i>e e</i>	<i>Concord.</i>
O'Malley, Michael J. <i>a</i> and <i>s</i>	<i>Somersworth.</i>
Pettengill, James B. <i>e e</i>	<i>Dover.</i>
Quimby, Waldo Hutchinson <i>e e</i>	<i>Concord.</i>
Robinson, John E. <i>c</i>	<i>Pembroke.</i>
Rogers, William Edward <i>m e</i>	<i>Durham.</i>
Shapleigh, Edward Eugene <i>e e</i>	<i>Kittery, Me.</i>
Skinner, Russell E. <i>a</i>	<i>Colebrook.</i>
Tucker, Herbert Ray <i>a</i> and <i>s</i>	<i>Concord.</i>
Tucker, Raymond Hodgdon <i>c</i>	<i>Berlin.</i>
Watson, Myles Standish <i>a</i>	<i>Durham.</i>

SOPHOMORES.

Name.	Residence.
Adams, Carroll Sidney <i>a</i> and <i>s</i>	<i>Marlborough.</i>
Andrew, David Henry <i>e</i>	<i>Newbury.</i>
Batchelder, C. Howard <i>a</i> and <i>s</i>	<i>Taunton, Mass.</i>
Batchelder, Roy Eugene <i>a</i>	<i>Sugar Hill.</i>
Beach, Robin <i>e</i>	<i>South Natick, Mass.</i>
Bissell, Don Warren <i>c</i>	<i>Keene.</i>
Buxton, Ray Pressey <i>e</i>	<i>South Hampton.</i>
Catlin, Harwood B. <i>a</i> and <i>s</i>	<i>Hill.</i>
Christie, Jesse Roy <i>a</i>	<i>New Boston.</i>
Cole, Edward Everett <i>a</i> and <i>s</i>	<i>Warner.</i>
Davis, Wesley Elton <i>e</i>	<i>Durham.</i>
Eastman, Wesley Edward <i>a</i>	<i>Andover.</i>
Falconer, William Marshall <i>a</i>	<i>Milford.</i>
Fisher, Frank Gordon <i>a</i>	<i>Durham.</i>
Foster, Perley Addison <i>a</i>	<i>Claremont.</i>
Gale, Philroy Clifton <i>e</i>	<i>Concord.</i>
Garland, Irving Robinson <i>a</i>	<i>Lakeport.</i>
Gillespie, Marion Emma <i>a</i> and <i>s</i>	<i>Manchester.</i>
Hayden, Harry Eugene <i>a</i> and <i>s</i>	<i>The Weirs.</i>
Hilliard, Leon Wilcomb <i>e</i>	<i>Kingston.</i>
Hoben, Francis Michael <i>c</i>	<i>Concord.</i>
Hodgdon, Winifred <i>a</i> and <i>s</i>	<i>Portsmouth.</i>
Jenness, Augustine Watson <i>e</i>	<i>Dover.</i>
Jones, Philip Cowell <i>a</i> and <i>s</i>	<i>Milton.</i>
Kelley, Charles George <i>a</i>	<i>Gilmanton.</i>
Keyes, Donald Babcock <i>c</i>	<i>Dover.</i>
Knight, Ray Hubert <i>a</i>	<i>Marlborough.</i>
Krook, William Cleon <i>e</i>	<i>Wolfboro.</i>
Ladd, John Everett <i>a</i>	<i>Raymond.</i>
Lane, Gilbert Frederic <i>c</i>	<i>Ashburnham, Mass.</i>
Lang, Gilman Anjavine <i>e</i>	<i>Newmarket.</i>
Leavitt, Van Earle <i>a</i> and <i>s</i>	<i>Laconia.</i>

Name.	Residence.
Locke, Harriet Esther <i>a</i> and <i>s</i>	Hampton.
Lord, Mabel Estella <i>a</i> and <i>s</i>	Hopkinton.
Lovell, Roscoe Ernest <i>a</i> and <i>s</i>	Portsmouth.
McPheters, George Allen <i>a</i> and <i>s</i>	Portsmouth.
Metze, Wilhelm Hamilton <i>e</i>	Berlin.
Morgan, John Christie <i>c</i>	Durham.
Neal, Cecil Maurice <i>e</i>	Portsmouth.
O'Connor, Regina <i>a</i> and <i>s</i>	Newmarket.
Paine, Nathan Dean <i>e</i>	Berlin.
Peavey, Harold Forrest <i>e</i>	Wolfeboro.
Perkins, Irving C. <i>a</i> and <i>s</i>	Kennebunk, Me.
Phillips, Paul Milton <i>a</i>	Nashua.
Pinkham, Valentine <i>e</i>	Dover.
Place, Walter Roy <i>e</i>	Alton Bay.
Richmond, Alfred Leroy <i>e</i>	Nashua.
Robinson, Harold Averill <i>c</i>	Elmwood.
Rogers, Charles Harold <i>a</i> and <i>s</i>	Exeter.
Sanborn, Ralph Moses <i>a</i> and <i>s</i>	Lakeport.
Sanborn, Smith <i>e</i>	Franklin.
Sawyer, Arthur H. <i>a</i>	Atkinson.
Scott, Charles Field <i>a</i> and <i>s</i>	Durham.
Towle, George Wesley <i>a</i> and <i>s</i>	Newmarket.
Tubman, Perry Elliott <i>e</i>	Portsmouth.
Tuttle, Harry Benjamin <i>a</i>	Atkinson.
Twomey, Thomas James <i>c</i>	Newfields.
Warner, William Pearl, Jr. <i>a</i> and <i>s</i>	Plaistow.
Whiting, Paul Nathaniel <i>a</i>	Amherst.
Whittemore, Hollie Leon <i>a</i>	Colebrook.
Willard, Daniel Phineas Alston <i>a</i> and <i>s</i>	West Upton, Mass.
Wood, Arthur G. <i>a</i> and <i>s</i>	Newmarket.
Woodward, Bernard <i>e</i>	Lancaster.
Work, Clayton Wight <i>e</i>	Exeter.
Wyman, Horace Chester <i>a</i>	Manchester.
Yates, James Black <i>e</i>	Biddeford, Me.

FRESHMEN.

Name.	Residence.
Annis, John Harold <i>e</i>	Manchester.
Arthur, Walter Edward <i>e</i>	Manchester.
Barrett, Lawrence Newton <i>e</i>	Hampton Falls.
Bean, Raymond Jackson <i>e</i>	Laconia.
Blake, Percival Moulton <i>a</i> and <i>s</i>	Hampton.
Brackett, William Henry Langdon <i>a</i> and <i>s</i>	Greenland.
Brown, Byron Francis <i>e</i>	Berlin Mills.
Brown, Leon Frank <i>a</i>	Rochester.
Carey, George Martin <i>a</i> and <i>s</i>	Salem Depot.
Chatfield, Asa Benjamin <i>a</i>	Durham.
Clark, Byron Humphrey <i>e</i>	Manchester.
Cole, Louise Annie <i>a</i> and <i>s</i>	Rollinsford.
Combs, Ray Warren <i>a</i>	Hampton Falls.
Connell, John Henry <i>e</i>	Rochester.
Davis, John Edgar <i>a</i> and <i>s</i>	Portsmouth.
Davis, Thomas Albert <i>e</i>	Dover.
Donoghue, John James <i>e</i>	Berlin.
Dresser, Clarence Jewell <i>e</i>	Berlin.

Name.	Residence.
Dustin, True Page <i>e</i>	<i>Berlin.</i>
Eastman, Harold Moses <i>e</i>	<i>Franklin.</i>
Eastman Moses Gale <i>a</i>	<i>Sanbornton.</i>
Fernald, Llwellyn Francis <i>e</i>	<i>Rochester.</i>
Foss, Raymond Haskell <i>e</i>	<i>Dover.</i>
Gamash, Albert William <i>a</i>	<i>Manchester.</i>
Garland, Russell White <i>e</i>	<i>Manchester.</i>
Goss, Herbert Albert <i>e</i>	<i>Berlin.</i>
Halvorsen, George Arthur <i>e</i>	<i>Berlin Mills.</i>
Halvorsen, Henry Olaf <i>e</i>	<i>Berlin Mills.</i>
Ham, Guy Leslie <i>e</i>	<i>Tuftonborough.</i>
Hannaford, Paul Francis <i>a</i> and <i>s</i>	<i>Peterborough.</i>
Hayes, John Paul, Jr. <i>a</i>	<i>Portsmouth.</i>
Heath, Carroll Richard <i>e</i>	<i>South Danville.</i>
Holt, Raimond Vincent <i>e</i>	<i>Berlin.</i>
Jenness, Chester Albert <i>a</i> and <i>s</i>	<i>Dover.</i>
Jesseman, LeRoy Dexter <i>a</i>	<i>Franconia.</i>
Johnson, Charles <i>a</i>	<i>Gilmanton.</i>
Kelley, Leon Jerry <i>e</i>	<i>Colebrook.</i>
Key, Yuling George <i>e</i>	<i>Shanghai, China.</i>
Ladd, Daniel Watson, Jr. <i>a</i>	<i>Epping.</i>
Lambe, Maxwell Richard <i>a</i>	<i>Somersworth.</i>
Leach, Herbert Chase <i>a</i>	<i>Litchfield.</i>
Lewis, Percy John <i>e</i>	<i>Lebanon.</i>
McCartney, Howard Ransom <i>e</i>	<i>Meriden.</i>
McCrillis, Neal <i>a</i>	<i>Whiteface.</i>
McNeil, Robert Henry <i>e</i>	<i>Dover.</i>
Mansur, John Percival <i>a</i> and <i>s</i>	<i>Haverhill, Mass.</i>
Montgomery, Earl Roger <i>e</i>	<i>Contoocook.</i>
Nudd, Frances Augusta <i>a</i> and <i>s</i>	<i>Hampton.</i>
O'Connor, Joseph R. <i>a</i>	<i>Newmarket.</i>
Osgood, Wilfred Albro <i>a</i>	<i>Windham.</i>
Paige, Laura Jane <i>a</i> and <i>s</i>	<i>Goffstown.</i>
Paulson, Carl Gustav <i>e</i>	<i>Berlin Mills.</i>
Pendergast, Harold Worth <i>a</i> and <i>s</i>	<i>Somerville, Mass.</i>
Perkins, Gerald Nye <i>e</i>	<i>Claremont.</i>
Pike, Isaac Watson <i>a</i> and <i>s</i>	<i>Haverhill.</i>
Reardon, Timothy Patrick <i>e</i>	<i>Concord.</i>
Richardson, Ernest Leonell <i>e</i>	<i>Newton.</i>
Sanborn, Roland Rufus <i>e</i>	<i>Rochester.</i>
Sargent, Arthur Frank <i>e</i>	<i>Manchester.</i>
Sellers, Paul Thornton <i>e</i>	<i>Franklin.</i>
Smart, Raymond Woodus <i>e</i>	<i>Dover.</i>
Smith, David Albert <i>e</i>	<i>Manchester.</i>
Smith, Fred Carl <i>e</i>	<i>Bradford, Vt.</i>
Smith, Holton A. <i>e</i>	<i>West Lebanon.</i>
Story, Irving Chellis <i>e</i>	<i>Claremont.</i>
Tarbell, Luther Allen <i>a</i>	<i>Hollis.</i>
Taylor, John Walter <i>e</i>	<i>North Walpole.</i>
Trickey, Mabelle Grace <i>a</i> and <i>s</i>	<i>Dover.</i>
Tufts, James Arthur, Jr. <i>a</i>	<i>Exeter.</i>
Watson, Lyle N. <i>a</i> and <i>s</i>	<i>Barnstead.</i>
Welsh, Russell Hamilton <i>e</i>	<i>Exeter.</i>
Wilder, Wallace Whittier <i>a</i>	<i>Amesbury, Mass.</i>
Williams, Everett Cook <i>a</i>	<i>Durham.</i>

Name.	Residence.
Worster, Della Olivia <i>a</i> and s	<i>Dover.</i>
Worthen, Frank Fayette <i>a</i>	<i>Piermont.</i>
Yaxis, Themistocles George <i>a</i>	<i>Kingston.</i>

SPECIALS.

Name.	Residence.
Hadley, Charles Harvey, Jr.	<i>Brooklyn, N. Y.</i>
Odiorne, Benjamin Gilbert	<i>Rye.</i>
Roberts, George Filmore	<i>Alton.</i>
Sanborn, Howard Weaver	<i>Sanbornton.</i>

TWO-YEAR COURSE.

Second Year.

Name.	Residence.
Bennett, Arthur M.	<i>Nashua.</i>
Bent, Horace V.	<i>Annapolis, N. S.</i>
Bodwell, Joseph Connor	<i>Sanbornton.</i>
Brown, Ernest Dwight	<i>Keene.</i>
Chadbourn, Aaron Willey	<i>Durham.</i>
Dole, Rockwell Merrill	<i>Proctorsville, Vt.</i>
Eaves, Louis Clifton	<i>Dublin.</i>
Ellsworth, Laurence E.	<i>Peterborough.</i>
Frizzell, Edward Reuben	<i>Durham.</i>
Griswold, Atherton	<i>Hancock.</i>
Hartshorn, Frank W.	<i>Meredith.</i>
Hazen, Allen E.	<i>Bethlehem.</i>
Henry, Norman Sargeant	<i>Durham.</i>
Leonard, James Basil	<i>Hingham, Mass.</i>
Mercer, Forrest Clinton	<i>Peterborough.</i>
Nye, Frederick Isaiah	<i>Swampscott, Mass.</i>
Robinson, Howard R.	<i>Littleton.</i>
Samayoa, Julius	<i>Guatemala, C. A.</i>
Sargent, Raymond A.	<i>Newton.</i>
Sherburne, Ernest G.	<i>Pelham.</i>
Stearns, Clifford Dwight	<i>Hinsdale.</i>
Stetson, Charles N.	<i>Durham.</i>
Stevens, Leon V.	<i>Canaan.</i>
Wadleigh, Lewis J.	<i>Tilton.</i>

First Year.

Baptiste, Alfred	<i>Durham.</i>
Bell, Charles E.	<i>Hollis.</i>
Blaisdell, Willis Stanley	<i>East Rochester.</i>
Brown, Horace Carlton	<i>Hollis.</i>
Chickering, Arthur Morgan	<i>Pembroke.</i>
Clark, Henry Howard	<i>Kingston.</i>
Davis, Wendell Philips	<i>Durham.</i>
Dennett, Jean Elwood	<i>Arlington, Mass.</i>
Eastman, Arthur Dearborn	<i>South Weare.</i>
Eastman, Thomas J.	<i>South Weare.</i>
Elkins, Harold David	<i>Hampton Falls.</i>
Field, Karl Satterly	<i>Ferrisburg, Vt.</i>
Gray, Edward Roberts	<i>Worcester, Mass.</i>
Haines, Ray Edward	<i>Lakeport.</i>

Name.	Residence.
Hall, Azel Storrs	<i>Durham.</i>
Harden, Edgar Arthur	<i>No. Conway.</i>
Henderson, Charles D.	<i>Somerville, Mass.</i>
Huntoon, Laurence Fred	<i>Danbury.</i>
Mitchell, Karl Perkins	<i>Epping.</i>
Mixer, Clarence Maxwell	<i>Somerville, Mass.</i>
Niemezik, George Arthur	<i>Leipzig, Germany.</i>
Ober, Frank Carroll	<i>Ashland.</i>
Philbrick, Horace Brown	<i>Kensington.</i>
Piper, Ralph Boutelle	<i>Townsend, Mass.</i>
Sherburne, Burton W.	<i>Pelham.</i>
Smith, Leslie Bernard	<i>Ashland.</i>
Steele, Philip Emerson	<i>Stoneham, Mass.</i>
Swasey, Fred Harold	<i>South Berwick, Me.</i>
Thomas, Reginald Robert	<i>Lancaster.</i>
Trow, Henry George	<i>Plymouth.</i>
Wear, Frank Gordon	<i>Gilmanton.</i>
Webster, Myrl Henry	<i>West Canaan.</i>
Whitcomb, Ernest B.	<i>Lempster.</i>
Wiggin, Ralph Minot	<i>Bedford.</i>
Wood, Browning Paton	<i>Dover.</i>

TEN-WEEK COURSE.

Batchelder, Paul Emery	<i>Hampton Falls.</i>
Burpee, Francis A.	<i>Peterborough.</i>
Douglas, Lee P.	<i>South Fairlee, Vt.</i>
Downes, Maurice E.	<i>West Andover.</i>
Eastman, Fred	<i>North Haverhill, R. F. D. 1.</i>
Fontaine, Edwin S.	<i>Peterborough.</i>
Howe, Chester LeRoy	<i>Watertown, Mass.</i>
Kilburn, Homer E.	<i>Andover.</i>
Mills, Frank L.	<i>Dover.</i>
Pease, Leon B.	<i>Wentworth.</i>
Potter, Edward E.	<i>East Concord.</i>
Robinson, Guy M.	<i>South Fairlee, Vt.</i>
Shaw, Albert V.	<i>Greenland.</i>
Smith, Arthur C.	<i>Hampton Falls.</i>

SUMMARY.

Seniors.....	26
Juniors.....	35
Sophomores.....	66
Freshmen.....	76
Students in Two-Year Course.....	59
Students in Ten-Week Course.....	14
Special Students.....	4
Students in One-Week Course.....	199
Total.....	479
Total (not including <i>One-Week Course</i>).....	280

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